

United States Department of Energy
Laboratory, Plant or Site Directed Research and Development Report
Project List -- Fiscal Year 2005

ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2003-064	Bio/Inorganic Hybrid Arrays for Photovoltaic Cells and Biological Sensors	\$108900
P/ANL2003-103	Fluxoid Manipulation by Josephson Vortices: New Opportunity for Vortex Logic	\$65800
P/ANL2003-117	Quantized Magneto-Catalysis of Electron Transfer Reactions	\$76300
P/ANL2003-124	Development of Polysiloxane-Based Solid Electrolytes for Lithium Batteries	\$99200
P/ANL2003-146	Synthesis of High Temperature Superconductor Wires using Novel Atomic Layer Deposition Synthesis	\$122800
P/ANL2003-151	Time-Resolved X-Tomography of Highly Transient Fuel Sprays	\$111200
P/ANL2003-158	High-Sensitivity Infrared Imagers for Environmental and Energy Security/Safety Monitoring	\$164000
P/ANL2003-172	Mass Spectral Detection of Biomolecular Interactions on a Functional Proteomic Biochip	\$131000
P/ANL2003-173	Functional Genomics of Endothelial Cell Formation	\$217200
P/ANL2003-176	Designer Antibodies and Interaction Mapping	\$571200
P/ANL2003-177	Nano-Architecture from the Bio-System: Fabrication, Assembly and Function	\$179100
P/ANL2003-185	High-Power Beam Dump for a Large Acceptance RIA Fragment Separator	\$285900
P/ANL2003-188	Development of a Model 3-Spoke Superconducting Resonator for RIA	\$335100
P/ANL2003-204	Lightweight and Robust Hydrogen Storage Materials for Automotive Fuel Cells	\$105700
P/ANL2003-216	Linear Collider R&D: High Gradient Accelerating Structures	\$303000
P/ANL2003-217	High-Brightness Beams Electron Sources	\$192300
P/ANL2003-218	Damping Rings for Linear Colliders	\$67400
P/ANL2003-219	Investigations of the Effect of the Biogeochemical Cycling of Iron on the Fate and Transport of Heavy Metal, Radionuclide, and Organic Contaminants	\$400000
P/ANL2003-230	Demonstrate the Two-Charge State Injector Concept for the RIA Driver Linac	\$288800
P/ANL2003-242	Transmission Multilayer Optics for Sub-Ten-Nanometer Focusing of Hard X-Rays	\$78300
P/ANL2003-256	Vacuum-Ultraviolet Free-Electron Laser Studies	\$234286
P/ANL2003-288	Thin-Film Liquid Lithium Stripper for the RIA Driver Linac	\$280500
P/ANL2003-329	Hydrogen Production from Low Temperature Thermochemical Cycles Compatible with Heat from a Na-Cooled Nuclear Reactor	\$260300
P/ANL2003-331	Process and Equipment Integration for a Recycling Capability	\$101000
P/ANL2003-335	Experimental Testing of Pyroprocessing Structural Materials	\$114600

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Project ID	Project Name	FY Total
P/ANL2003-336	Multidisciplinary Theory	\$298000
P/ANL2003-337	The Use of Synchrotron Radiation Sources for Homeland Security - Terahertz and X-Ray Radiation	\$241600
P/ANL2003-338	Modeling Near-Field Atmospheric Dispersion and the Potential Health and Economic Impacts from Terrorism Scenarios Involving "Dirty Bombs" or Similar Devices	\$218500
P/ANL2003-340	Core-Shell Nanocrystal Spring Magnets	\$60400
P/ANL2003-341	Simulation and Modeling of Reactivity in Nanoporous Materials	\$46700
P/ANL2004-002	Development of Germanium Double Sided Strip Detectors for Nuclear Imaging Applications	\$112200
P/ANL2004-009	Ultrafast Laser/X-Ray Interactions	\$67100
P/ANL2004-014	Development of Cross-Polarization Confocal Microscopy for Measurement of Subsurface Microstructure	\$86400
P/ANL2004-018	Fundamental and Applied Studies of Novel Intermetallic Thin Films for Lithium Ion Battery Anodes	\$130300
P/ANL2004-019	Multiphase CFD Analysis of Vascular Lesion Formation	\$118500
P/ANL2004-026	Science and Technology of a New TiAlO Alloy Oxide and Its Application to a New Generation of Integrated Circuit Gate Dielectric	\$86600
P/ANL2004-038	Time-Resolved Studies of Magnetization Dynamics in Nanostructured Materials	\$105000
P/ANL2004-041	Site-Specific Magnetism in Crystals	\$74800
P/ANL2004-044	Palladium/Semiconductor Nanohybrids as Hydrogen Sensors for Fuel Cell Applications	\$126300
P/ANL2004-046	Superconducting Magnetic Control System for Manipulation of Magnetic Particles and Nano-Particles for Medical Applications	\$120600
P/ANL2004-057	Novel Integrated (On-Chip) Magnetic Field Sensors	\$74100
P/ANL2004-063	Ferromagnetic Micro-Disks with Superior Properties for Biomedical Applications	\$115600
P/ANL2004-069	Design and Fabrication of Two Novel High-Gradient Accelerating Structures: The Metallic Photonic Bandgap Accelerator and the SiC Surface Wave Accelerator	\$86700
P/ANL2004-086	A New Low Temperature Thermochemical Hydrogen Production Cycle Based on Heavy Element Halides	\$93200
P/ANL2004-095	Nanoporous Separation Membranes	\$131900

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P/ANL2004-103	Direct Regeneration of Cofactors with an Electron/Ion Mixed Conductive Matrix	\$114700
P/ANL2004-115	Photosynthetic Reaction Center as a Novel Quantum Electronic Circuit Element	\$170100
P/ANL2004-126	Novel Hydrogen Storage Media through Nano-Structured Polymer and Carbon Layer Materials	\$115300
P/ANL2004-133	Ultra-High-Sensitive Miniature Calorimeter for Studies of Confinement Effects of Bio-Organic Structures	\$118900
P/ANL2004-141	Environment for a Nanoscale Materials Virtual Fab Lab	\$257300
P/ANL2004-142	Simulations of Spin Wave Excitations in Magnetic Nanoparticles	\$37500
P/ANL2004-144	Near-Field Optical Investigations of Nanoscale Photochemistry and Photophysics	\$153400
P/ANL2004-145	Ultrasensitive Hydrogen Sensors	\$67800
P/ANL2004-148	Discovery of Protein Space	\$63800
P/ANL2004-149	Nano IR Spectroscopy and Imaging	\$82800
P/ANL2004-154	Nanoscale Confinement of Highly Spin-Polarized Oxides	\$43000
P/ANL2004-156	Functional Metalloproteomics	\$106200
P/ANL2004-157	High-Throughput Analysis of Low Abundance Protein Constituents in Complex Biological Mixtures	\$201000
P/ANL2004-158	Development of Peptide Biochips for a Whole-Proteome Analysis of Protein Interactions with Peptide Recognition Modules	\$148400
P/ANL2004-159	Molecular Recognition: Protein-Small Molecule Interactions	\$73100
P/ANL2004-160	Characterizing and Unveiling the Mechanism of Protein-Ligand Interactions	\$134000
P/ANL2004-161	Evolution of the Hydrogen Infrastructure as a Complex Adaptive System	\$52800
P/ANL2004-162	The Biogeochemical Cycle of Nitrogen: Effects on Climate Change	\$189500
P/ANL2004-164	Challenge and Opportunity in Megaproteins	\$149600
P/ANL2004-166	Inert Metal Matrix LWR Dispersion Fuel Fabrication	\$41200
P/ANL2004-167	Evaluation of Fuel-Cladding Interaction in a Lined, ODS-Clad, SFR Fuel for Hydrogen Production Applications	\$24600
P/ANL2004-169	Compact Heat Exchanger Studies for Supercritical CO ₂ Power Conversion System	\$176500
P/ANL2004-173	Modeling Nuclear Energy Market Penetration in the U.S. Energy Sector	\$140400
P/ANL2004-174	Life Cycle Analysis for the DANESS System Dynamics Code	\$174100

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P/ANL2004-175	Economic Impacts of a Transmutation Enterprise	\$176600
P/ANL2004-177	Recovering Actinides from UO ₂ -Carbide Fuels	\$57300
P/ANL2004-178	Incorporating Advanced Methods and Instrumentation into an Analytical Chemistry Laboratory to Support Advanced Fuel Cycle Needs	\$18200
P/ANL2004-179	ICP-OES Methods for Actinide Accountancy Measurements and Process Control in Spent Fuel Processing	\$57200
P/ANL2004-180	AMUSE Development, Beyond Solvent Extraction and Into Hybrid Processing	\$133200
P/ANL2004-181	Evaluation and Development of a Supercritical Carbon Dioxide Based Dry Processing Technology and Related Closed Fuel Cycle Applications	\$20600
P/ANL2004-185	Investigation of Passive Safety Performance of the Very High Temperature Reactor (VHTR) in Hydrogen Production Applications	\$131500
P/ANL2004-186	Design of a Helium Loop with Controlled Impurity Control for Research on Materials with Application in VHTR	\$42200
P/ANL2004-188	Development of Advanced Computational Procedure for VHTR Physics Analyses	\$176500
P/ANL2004-191	Multidimensional Flow and Heat Transport Natural Convection Test Capability	\$226100
P/ANL2004-194	Hydrogen and Oxygen Production from Low Temperature Hybrid Cycles	\$59300
P/ANL2004-201	Microfluidic Study of Nanofluids	\$57800
P/ANL2004-212	Novel Superhard Coatings for Wear Reduction and Energy Saving Applications in Diesel Engines	\$68200
P/ANL2004-213	Pressure Rate Controlled Compression Ignition Engine (PRCCI)	\$95500
P/ANL2004-215	Investigation into Nano-Particulate Production from Homogeneous Charge Compression Ignition (HCCI) Combustion	\$97100
P/ANL2004-224	Improvement of High-Voltage Breakdown Characteristics in Linacs by Atomic-Scale Surface Smoothing Techniques	\$17700
P/ANL2004-226	Development of Ultrafast Laser Techniques for Advanced Accelerator Research	\$59400
P/ANL2004-227	Advanced Heavy-Ion Beam Dynamics	\$109200
P/ANL2004-228	Next-Generation Light-Source Storage Ring Design and Simulation	\$26100
P/ANL2004-231	Improvement of FNAL Run II Performance: Tevatron Optics Modeling	\$26100
P/ANL2004-232	Improvement of FNAL Run II Performance: Optical Transition Radiation (OTR) Imaging for Protons and Antiprotons	\$17700
P/ANL2004-233	Improvement of FNAL Run II Performance: Electron Cooling	\$79000

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P/ANL2004-234	RF Superconductivity for Future Accelerators	\$170300
P/ANL2004-238	Quantum Computation with Electron Spins: Qubit Networks of Endohedral N in C[60]	\$68900
P/ANL2004-239	Evaluation of Fast Flux Test Facility	\$182300
P/ANL2004-240	Proteomic and Phage-Display Analysis of Mitochondrial Compartmental Oxidant Biosensors for the Study and Reversal of Sudden Death Events	\$50300
P/ANL2004-241	A New Approach to Recycling Spent Nuclear Fuel using Room Temperature Ionic Liquids	\$109700
P/ANL2004-242	Laser Surface Texturing for Friction Reduction	\$76300
P/ANL2004-243	Innovations for Small Modular Fast Reactor	\$1254500
P/ANL2005-007	Motion of Nanoparticles in Nanofluids	\$72200
P/ANL2005-024	ALD Stabilization of Nanoparticles Designed on the Atomic Scale	\$98700
P/ANL2005-028	Fundamental and Applied Science of Hybrid Ferroelectric/Piezoelectric-Diamond Heterostructures for High-Performance MEMS/NEMS Devices	\$113900
P/ANL2005-032	Uniform-Sized Biodegradable Nanospheres for Drug Delivery - Novel Synthesis Platform Can Revolutionize Targeted Drug Delivery	\$70200
P/ANL2005-036	Investigating Ultra-Fast Catalysis and Electro-Catalysis Processes using Time-Resolved X-Ray Absorption Techniques	\$132700
P/ANL2005-046	Nanosensors for Label-Free Detection of Protein-Ligand Binding at Biological Membrane Surfaces	\$131900
P/ANL2005-065	Shock-Wave Desorption of Large Organic Molecules	\$92700
P/ANL2005-067	Nano-Ionics: A Route to High Performance Fuel Cells, Membranes, and Sensors	\$134800
P/ANL2005-086	Imaging Microbial Biofilms using Mass Spectrometry	\$67000
P/ANL2005-089	Organic Light-Emitting Diodes Based on Nanostructured Non-Sandwich Electrodes	\$119500
P/ANL2005-092	Enhancement of Battery and Ultracapacitor Performance through Novel Applications of Nanotechnology	\$149700
P/ANL2005-116	High-Brightness Electron Gun Arc Suppression	\$15700
P/ANL2005-119	High-Fidelity Integrated Simulation for Nuclear Energy Applications	\$217500
P/ANL2005-122	Accurate Synchronization between Lasers and Accelerators	\$25800
P/ANL2005-127	Collectivity in Inorganic and Bio-Inspired Optical Nanosystems	\$149500

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Project ID	Project Name	FY Total
P/ANL2005-128	Establishing Metallicity Threshold of Ultrasmall Metal Clusters: A New Size Regime for Nanophotonic Materials	\$41000
P/ANL2005-135	Investigation of Innovative Joining Techniques For Oxide Dispersion Strengthened (ODS) Alloys	\$102100
P/ANL2005-139	Nano-Pumping and Nano-Engine Made of Carbon Nanotubes	\$41300
P/ANL2005-140	Reducing Heavy Duty Vehicle Emissions through Coupling Diesel Reforming to Emissions Catalysts and Engine Control Devices	\$71900
P/ANL2005-142	Nanosized Bimetallic Catalysts for Hydrogen Production	\$105500
P/ANL2005-146	Superconducting Undulator for Variable Helical Fields	\$68400
P/ANL2005-147	Hybrid Nanostructures within Cell Machinery	\$80700
P/ANL2005-148	Bio-Inspired Self Assembly	\$72900
P/ANL2005-150	Metalloregulation of Signaling between the Extracellular Matrix and Intracellular Milieu	\$165900
P/ANL2005-155	In Situ X-Ray, Electrochemical, and Modeling Investigation of High-Temperature Fuel Cell and Electrolysis Electrodes	\$146600
P/ANL2005-157	High-Fidelity Integrated Simulation of Nuclear Energy Systems through Petascale Computing	\$351300
P/ANL2005-159	Nano-Patterning Cell Focal Adhesion Formation on Diamond Surfaces	\$53300
P/ANL2005-160	Planning for a New Neutrino Experiment at a Nuclear Reactor	\$88500
P/ANL2005-161	Femtosecond Pulses of Coherent Synchrotron Radiation from an Emittance-Sliced X-Ray FEL	\$21400
P/ANL2005-165	Nanoscience at the Interface between Homogeneous and Heterogeneous Catalysis	\$57400
P/ANL2005-166	Aligned Molecular Targets for Fourth Generation Source	\$78900
P/ANL2005-168	Lateral and Molecular Spintronic Structures	\$169700
P/ANL2005-169	Advanced Spatial Analytical Techniques: New Methods to Communicate Complex Information	\$438000
P/ANL2005-170	Investigating the Relationship between Emerging Infectious Disease in Wildlife and the Effects to Human Health and Biodiversity: A Computational Science Approach	\$88000
P/ANL2005-171	Bio-mimetic Catalysts for Hydrogen Production	\$72400
P/ANL2005-175	Fundamental Studies of Electrocatalysis for Low Temperature Fuel Cell Cathodes	\$135600

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P/ANL2005-177	Control of Bio-Based Nanoscale Hybrids for Optimal Energy Transduction using Light and Magnetic Fields	\$61800
P/ANL2005-178	Bio-Hybrid Architectures for Parallel Catalysis	\$114600
P/ANL2005-179	Fast Release ISOL Target Concept Based on Aerogels	\$62600
P/ANL2005-181	Nanoscale Synthesis of Complex Oxides/Composites for Electronic and Photonic Applications through Highly Ordered AAO Templates	\$47900
P/ANL2005-182	Aggressive Energy Recovery Design for a Hydrogen Engine in a Hybrid Electric Vehicle Application	\$78600
P/ANL2005-184	Nanoscale Catalysis for the Hydrogen Economy	\$77600
P/ANL2005-185	Property Control of Organic Semiconductor Nanoparticles by Hierarchic Structural Manipulations	\$63000
P/ANL2005-187	Integrated Simulation Framework for National Security Decision Support	\$197100
P/ANL2005-188	Dynamics of Topological Solitons in Nanomagnetic Structures	\$63500
P/ANL2005-190	Synthesis and Properties of Nanocarbons	\$64000
P/ANL2005-193	PDQuest: Investigations into Applications, Software and Architectures for Enabling Petascale Science	\$690400
P/ANL2005-194	Computation and Informatics for Modeling and Analysis of Biological Systems	\$676700
P/ANL2005-198	Proactive Designs of Self-Configuring Dynamic Sensor Networks for Wide Area Persistent Monitoring	\$62700
P/ANL2005-202	Measurement of Unknown Optical Rotatory Properties of Biological Agents and Simulants using Optical Polarimetry	\$88200
P/ANL2005-204	Universal Phylochip for Environmental Background Characterization and Monitoring	\$198100
P/ANL2005-206	Advanced Accelerator Simulation and Modeling Support	\$23900
P/ANL2005-207	Development of State-of-the-Art Nanoimprinting	\$101200
P/ANL2005-209	Transport in Nanoscale Materials	\$156500
P/ANL2005-210	Nanoscale Materials Synthesis and Self-Assembly	\$167400
P/ANL2005-211	Synthesis and Characterization of Superconducting Doped Boron-Nanotubes	\$63400
P/ANL2005-212	X-Ray Scattering from Optically Trapped Nanoparticles	\$84100
P/ANL2005-213	Novel Magnetic Force Microscopy for Variable-Temperature Ultra-High-Vacuum Environments	\$63600
P/ANL2005-214	A Hybrid Instrument - MISANS (Modulated Intensity Small-Angle Scattering)	\$63700

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Project ID	Project Name	FY Total
P/ANL2005-215	High-Resolution Element-Selective Microscopy Using X-ray Enhanced Scanning Tunneling Microscopy	\$78900
P/ANL2005-216	Quantum Critical Behavior in Nanostructured Materials	\$112900
P/ANL2005-217	Precision Measurement of Hadronic Showers	\$177000
P/ANL2005-219	Grazing Incidence SAXS Characterization of the In-Plane 3D Nanostructure in Hybrid Ultra-thin Multilayers	\$62900
P/ANL2005-220	Superconductors at Nanoscale	\$100800
P/ANL2005-221	Advancing Multidisciplinary Condensed Matter Theory	\$123500
P/ANL2005-222	Prototyping Agent Models for Social Science Applications to Homeland Security	\$49600
P/ANL2005-223	In-Situ Raman Spectroscopy of Catalysts	\$347000
Total # of Projects for ANL:	165	Total Cost for ANL: \$22154986

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Project ID	Project Name	FY Total
03-004	High-Brightness, High-Power Electron Beams	\$190047
03-056	Structural Properties of Methane Hydrates	\$14997
03-064	Investigation of Neutron and Gamma Probes to Detect Explosives in Sealed Containers	\$90901
03-094	Structural Studies on the Integral Membrane Protein AlkB	\$37988
03-099	The microPET Study of Gene Expression in Rodents	\$51145
03-104	Hydrogen Atom Transfer from Carbon to Metal - Relevance of a Novel Reaction to Catalyzed Hydrocarbon Conversions	\$58039
03-105	Radioprotection in D. Radiodurans, a Radiation Resistant Bacterium	\$15329
03-107	New Development of Norepinephrine Transporter Radioligands for PET Studies of Substance Abuse, Depression and ADHD	\$93195
03-118	Condition: Green Chemistry Radiolytic Studies of Ionic Liquids in Service of Security and the Environment	\$36945
03-119	Exploring the Use of Powder Diffraction for Proteins	\$34880
03-121	Element-Resolved Dynamics of Nanoscale Ferromagnets	\$49698
03-122	Membrane Biophysics Using Model Membranes	\$49740
03-127	High Pressure in Strongly Correlated Materials - An Optical Investigation	\$11000
03-129	Polyoxometalate Giant Molecules: Novel Synthetic Methods, Characterizations and Potential Applications	\$45558
03-138	Functional Bulk Mn-Based Nanocomposites	\$42185
03-151	Radio Wave Detection of Ultra High Energy Cosmic Rays	\$17502
03-162	New Synthesis Techniques to Control Atomic Defects in Advanced Intermetallic Compunds	\$70713
04-011	Femtosecond Photoinitiated Nanoparticle Surface Chemistry	\$121071
04-013	Chirped Pulse Amplification at the DUV-FEL	\$119331
04-025	Overcoming Coherent Instabilities at Medium-Energy Storage Rings	\$128858
04-033	Layered Cobaltates with High Thermoelectric Power	\$103160
04-038	Complex Thin Films and Nanomaterial Properties	\$190532
04-041	Physics of Quark Gluon Plasma (QGP)	\$109751
04-043	Very Long Baseline Neutrino Oscillation Experiment	\$106166
04-046	Advanced 3He Detectors for the Spallation Neutron Source	\$109650

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Project ID	Project Name	FY Total
04-055	Genetic NanoTags	\$114424
04-060	The Use of Singular Point Genome Sequence Tags to Analyze Community Composition and Metabolic Potential	\$185509
04-061	3-D Electronic Wave Functions from EM Images	\$149814
04-062	Functional MRI Studies in Rats using Implanted Brain Electrodes	\$119912
04-063	Optimizing Functional Neuroimaging Techniques to Study Brain Function in Health and Disease States	\$144278
04-066	Technological Development of a Fluorescence Probe for Optical Detection of Brain Functional Activation in vivo	\$132570
04-069	Nuclear Control Room Unfiltered Air In-Leakage by Atmospheric Tracer Depletion (ATD)	\$88764
04-073	Perfluorocarbon Tracer Sampling, Tagging and Monitoring Techniques for use at the Urban Atmospheric Observatory	\$98809
04-079	Development of an Aerosol Mobility Size Spectrometer and an Aerosol Hygroscopicity Spectrometer	\$99415
04-086	Exploration of Thermal Diffusion Processes in CdZnTe for Improved Nuclear Radiation Detectors	\$131041
04-088	An Integrated Approach of High Power Target concept Validation for Accelerator-Driven Systems	\$121361
04-104	Hydrogen Storage Using Complex Metal Hydrides for Fuel Cell Vehicles	\$108592
05-003	Full Power Test of the Amplifier for the Optical Stochastic Cooling using JLAB FEL	\$112488
05-005	Study of Photon Coupling to an Electromagnetic Field Gradient	\$105693
05-006	Heavy Ion Physics with the ATLAS Detector	\$5623
05-017	Superconducting Lead Photoinjector	\$117500
05-020	Controlled Formation of Nanostructured RuO2 Catalysts	\$117502
05-021	Hydrogen Storage in Complex Metal Hydrides	\$123301
05-028	Behavior of Water on Chemically Modified Semiconductor Surfaces: Toward Photochemical Hydrogen Production	\$89092
05-030	Assembling of Biological and Hybrid Complexes on Surfaces	\$139859
05-033	Ultra High Resolution Photoelectron Spectrometer	\$67053
05-038	Metal-Metal Oxide Electrocatalysts for Oxygen Reduction	\$99510
05-041	Multifunctional Nanomaterials for Biology	\$128192

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Project ID	Project Name	FY Total
05-042	Polariton-Enhanced FRET for Device-Integration of Plasma Membranes from Rhodobacter Sphaeroides	\$79321
05-044	Intense THz Source & Application to Magnetization Dynamics	\$50175
05-048	Nano-Imaging of Whole Cells with Hard X-Ray Microscopy	\$19496
05-050	Study to Convert NSLS VUV Ring to Coherent IR Source	\$49261
05-051	Superconducting Undulator Technology	\$189451
05-057	Characterization and Imaging of Amyloid Plaques Using Diffraction Enhanced Imaging	\$100793
05-058	Development of Methodologies for Analyzing Transcription Factor Binding in Whole Genomes	\$92970
05-063	Application of Endophytic Bacteria to Improve the Phytoremediation of TCE and BTEX using Hybrid Poplar	\$212900
05-064	Design and Build Two Dimensional Protein-Lipid Thin Film: A First Step Toward Novel Biochips	\$61342
05-068	Positron Labeled Stem Cells for Non-Invasive PET Imaging Studies of In-Vivo Trafficking and Biodistribution	\$63600
05-069	Breaking the Millimeter Resolution Barrier in fMRI	\$109920
05-070	Novel Multi-Modality MRI and Transcranial Magnetic Stimulation to Study Brain Connectivity	\$105571
05-071	Ovarian Hormone Modulation of ICP: MRI Studies	\$107120
05-072	Feasibility of CZT for Next-Generation PET Performance	\$111425
05-074	Biology on Massively Parallel Computers	\$168787
05-078	Ionic Liquids in Biocatalysis and Environmental Persistence	\$99464
05-082	Single Particle Laser Ablation Time-of-Flight Mass Spectrometer (SPLAT-MS) Enhancements: Aerosol Optical Properties and Increased Particle Detectivity	\$97705
05-088	Transition Metals in Oil and Gas Exploration	\$128489
05-092	An Innovative Infiltrated Kernel Nuclear Fuel (IKNF) for High-Efficiency Hydrogen Production with Nuclear Power Plants	\$130393
05-094	Development of Green Processes: Catalytic Hydrogenation in Water Utilizing In Situ Biologically-Produced Hydrogen	\$274561
05-098	Fast Neutron Imaging Detector	\$124052
05-104	Giant Proximity Effect in High-Temperature Superconductors	\$267837

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Project ID	Project Name	FY Total
05-105	Development of an Observation-based Photochemical-Aerosol Modeling System	\$109033
05-106	Exploring Root Physiology in Relation to Uptake of Groundwater Pollutants	\$165365
05-108	X-ray Absorption Spectroscopic Method for Studying Environmentally-relevant Reaction Kinetics	\$92733
05-109	Global Cloud Analysis Technologies (G-CAT)	\$92858
05-110	Computational Science	\$109776
05-111	Structural Study of gamma-Secretase by Cryo-EM	\$191280
05-112	Structural Analysis of Bacterial Pilus Biogenesis	\$208405
05-114	Study of High-Tc Nanostructures	\$265787
Total # of Projects for BNL:	78	Total Cost for BNL: \$8378553

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Project ID	Project Name	FY Total
AE101	Advanced Fission Product Detection Systems for the Next Generation Nuclear Reactors	\$195195
AE102	Development of Advanced Aqueous Processing to Support the Nuclear Fuel Cycle	\$171958
AE103	Radiation Chemistry of Supercritical Water	\$158987
AE104	Development of Experimental Methods for Measurements of Nuclear Cross Sections	\$959394
AE105	Evaluation of Alternate Materials for Coated Particle Fuels for the Generation IV Gas-cooled Fast Reactor	\$435392
AE106	Fast Test Irradiation Facility	\$240745
AE107	Investigation of Fundamental Thermal-Hydraulic Phenomena in Advanced Gas-Cooled Reactors	\$298273
AE108	Advanced Fuel Development	\$253493
AE109	Investigation of Nanofluids for use in Nuclear Reactors	\$418327
AE110	Design of a High-Resolution Reactor Analysis Capability Using a Generic Transport Algorithm	\$359912
AE111	Investigation of Core Flow Behavior During Loss of Coolant Transients for the Generation IV Gas Cooled Reactor Designs	\$183828
AE112	Reactor Physics Methods Development for Idaho National Laboratory Competitiveness in Next Generation Nuclear Plant (NGNP) Design	\$81673
AE113	Fuel Fabrication Development	\$151539
AE114	SESAME: Simulations Enabled Safeguards Assessment Methodology	\$182922
AE115	SINEMA: Simulation Institute for Nuclear Energy Modeling and Analyses	\$50948
CS118	Advanced Automated Ion Mobility Spectrometer for Explosives Detection	\$233628
CS119	First Responder and DOE Site Recon UAV Capability	\$271772
CS120	Transmission Line Security Monitor and Repeater System Concept	\$203848
CS121	Software Tool-kit for Effective and Repeatable Remote Attacks Against Command and Control Systems used in Electricity Generation and Distribution	\$194268
CS122	TEstbed for Personal Electronic Devices (TEPED)	\$162390
CS123	Development of a Carbothermal Reduction Reaction Process for the Manufacturing of SiC/TiB ₂ Ceramic Composite	\$116398
CS124	Cyber Protection for Critical Infrastructure	\$313606

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INL - Idaho National Lab

Project ID	Project Name	FY Total
CS125	Investigation of New Generation Imaging Systems for the Stand Off Detection of Suicide Bombing Suspects	\$225322
CS126	Title Rapid Real Time Non Destructive Evaluation of Protective Systems	\$51492
CS127	Attack Graph Approach to Control System Vulnerability Analysis	\$205531
CS128	Next-Generation Neutron Generator	\$68053
ET118	Intelligent Control of Multi Nodal Systems	\$81363
ET121	Human Factors for Management of High Consequence Events	\$145707
ET122	Developing the Scientific Basis for Landscape Level Management of Federal Facilities	\$207678
ET125	Stable Enzymes for Hemicellulose Hydrolysis	\$124927
ET129	Highly Selective Sorbents for Removal of Arsenic from Drinking Water	\$181966
ET130	Investigation and Modeling of Dynamic Strain Rate Effects on Structural Material Response	\$24997
ET132	Modulating Drain Valve for Continuous Processing of High Temperature Molten Materials	\$122947
ET133	Systematic Feasibility Analysis of Power Production from Unconventional Geothermal Resources	\$98361
ET134	Investigation of Passive Film Performance on Hastelloy C22 in Structural Loading	\$106136
ET135	Dynamic Autonomy for Mobile Manipulation	\$95813
ET136	Rapid Prototype for Geospatial Data Acquisition from Unmanned Aerial Vehicle Platforms	\$49737
ET137	Development of Integrated Virtual Engineering Tools to Facilitate Unique High-Level Decision Making Capabilities	\$49683
ET138	Two-cycle Engine Exhaust Emissions Separator	\$17586
ET139	Advancing Human-Computer Interaction Techniques through State-of-the-Art Human-Reliability Analysis	\$16474
ET140	Vertical Flow Engineered Wetland Field Mini-Test	\$13664
ET141	Water Energy Continuum	\$47415
ET142	Development of Modular Direct Referencing Sensor System for Unmanned Autonomous Vehicles	\$66889
GC153	Development and Use of Transgenic Caenorhabditis elegans to Measure Bioavailability of Metals and Mutagenicity in Contaminated Media	\$167648

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Project ID	Project Name	FY Total
GC156	Manipulation of Flow in Subsurface Environments, Coupling between Precipitation and Fluid/Mass Transport	\$357301
HT100	Hydrogen Production from High Temperature Nuclear Reactors	\$200032
HT101	Polybenzimidazole-Based Composites as Candidate Materials for Hydrogen Containment and Purification	\$129661
HT104	Hydrogen Delivery and Separation in Natural Gas Pipelines	\$143992
HT105	Hydrogen Generation using Lanthanum Gallate Electrolysis Cells	\$103147
HT106	Renewable Biomass Carbon for Synthetic Fuels to Support the Hydrogen Economy	\$200446
HT107	H2O / CO2 Co-Electrolysis for Syngas Production	\$194351
HT108	Alternate Configurations for High Temperature Electrolysis Cells	\$95726
HT109	Hybrid Heterogeneous Catalysts for Hydrogenation of Carbon Dioxide to Liquid Hydrocarbons	\$119537
HT110	Technical and Economic Evaluation of Options for CO2 Use	\$96462
NE131	Bimodal Nuclear Thermal Propulsion	\$197006
NE132	Evaluation of Fuel-Cladding Interaction in a Lined, ODS-Clad, SFR Fuel for Hydrogen Production Applications	\$52391
NE133	Incorporating Advanced Methods and Instrumentation for an Analytical Chemistry Laboratory to Support Advanced Fuel Cycle Needs	\$43488
NE134	Evaluation and Development of a Supercritical Carbon Dioxide Based Dry Processing Technology and Related Closed Fuel Cycle Applications	\$5643
NE135	Evaluation of Fast Flux Test Facility	\$71021
NE136	Inert Metal Matrix LWR Dispersion Fuel Fabrication	\$69244
NE137	Investigation of Innovative Joining Techniques For Oxide Dispersion Strengthened Alloys	\$61984
NE139	Dynamic Probabilistic Extensions to the SAPHIRE Risk and Reliability Designer Tool	\$105020
NE141	Joint System Prognostics For Increased Efficiency And Risk Mitigation In Advanced Reactor Instrumentation And Control	\$191290
NE142	System Reliability via Block Diagrams Extensions to the SAPHIRE Designer Tool	\$72331
NS144	Proactive Designs of Self-Configuring Dynamic Sensor Networks for Wide Area Persistent Monitoring	\$133031
NS145	Forensic Signatures of Higher Actinide Elements in Advanced Irradiated Fuels	\$66140

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Project ID	Project Name	FY Total
NS146	Biological Threat Agent Forensics	\$56746
NS147	Enhanced Explosives Testing Capability	\$311790
NS148	Security and Reliability of Encryption Technology Applications over Geographically Separated Control System Nodes	\$69528
NS149	Radio Frequency Test Range Characterization	\$192856
PH103	Residual Hazards Management: Decisions Leading Toward Success or Failure?	\$90824
PH104	Modeling an Earth Borehole System for Physical Property Determination in Shallow Subsurface Environments with Emphasis on Vadose Zone Applications.	\$21503
PH105	Improving Soil Water Flux Estimates in the Deep Vadose Zone	\$78822
PH106	A New Hydrogeophysical Method for Characterizing and Monitoring Preferential Flow Paths in Complex Layered and Fractured Basalt	\$12126
PH107	Dependence of Coal Bed Permeability on Pore Pressure and Adsorbed Gas Content	\$100073
RP101	Advanced Test Reactor Three Dimensional Neutronics Modeling	\$271221
RP102	Hollow Waveguide Laser Ultrasonics for High Radiation Environments	\$204501
RP104	Improved Techniques for In-Situ Measurements	\$260486
RP105	NiCrFe Filler Metal for Cracking Resistance	\$100774
RP106	Protective Coating Development for Reactor Instrumentation	\$113652
RP107	Acousto-Optic MEMS for Hostile Environments	\$98472
RP108	Processing Irradiated Beryllium for Disposal	\$130101
RP109	Analysis and Modernization of Radioanalytical Methods and Equipment used to Support ATR	\$119748
SC119	Development of Microelectrode Arrays for In Situ Detection of Localized Corrosion	\$99981
SC120	Advanced Materials for Power Generation	\$94707
SC121	Effect of Environmental Variables on Bicarbonate Transport by Marine and Freshwater Cyanobacteria	\$235591
SC122	Synthesis and Characterization of Hybrid Materials for Advanced Membranes and Molecular Ropes	\$179593
SC123	Investigation Into Parallelization of Fate and Transport Models	\$49895
SC124	Phononic Crystals for Sensing	\$50161
SC125	Elucidating Electrospray Mechanisms	\$49723

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INL - Idaho National Lab

Project ID	Project Name	FY Total
SC126	Electroimpedance Experiments on Enhanced Polymer Electrolytes for Seawater Batteries	\$49111
SC127	Photochemical Molecular Devices	\$49238
SC128	Synthesis, Characterization, and Stability of Bis-(p-trifluoromethylphenyl)dithiophosphinic Acid	\$49210
SC129	Novel Intermetallic Superconductors for High Field Applications	\$49223
SC130	Immobilization of Lead by Urea Hydrolyzing Bacteria	\$47470
SC131	In-Situ Treatment of Arsenic	\$48235
SC132	Use of Bacterial and Animal Test Models to Assess the Impact of Nanoparticles on the Environment	\$79498
SC133	Materials Damage Evolution and Failure	\$162897
SC134	In Situ Laser-based Characterization of Fatigue Damage in High Temperature Environments	\$277161
SC135	Mechanism of Dusting in Nickel and Nickel Alloys	\$13841
SC136	Real Time Processing and Visualization of 3D X-ray Computed Tomography data	\$79258
SC137	Microbial Metabolic Systems Approach to the Evaluation of Hydrogenic Activity of Extremophilic Anaerobic Carboxydorphs	\$476136
SC138	Structure and Reactivity of Actinide Complexes and Clusters under Controlled Solvation Conditions	\$87485
SC139	Optical Eddy Current Techniques for Harsh Environments	\$59301
SC140	Multiple Sensor Array for Harsh Environments	\$67483
SM103	Establishment of a Comprehensive Armor Material, Process and Manufacturing Program	\$476829
ST110	Graphite Dust Palliative Technology	\$53734
ST111	Quantitative Spatial Measurement System For Improved Video Imaging Capabilities in Underground Piping and Tanks.	\$39470
ST112	Optimization of the Separation and Detection of I-129 in Environmental Samples	\$34867
ST113	Co-precipitation of Sr in INTEC Alluvium using Reactive Gas Amendments	\$43307
ST114	Investigation of the Potential for 90Sr Immobilization in INTEC Perched Water via Microbially Facilitated Calcite Precipitation	\$27589
ST115	Experimental Investigations of Application and Delivery Mechanisms for In Situ Stabilization of Sr-90 in the Alluvium and Interbed Sediments Underlying the INTEC Tank Farm	\$117008

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INL - Idaho National Lab

Project ID	Project Name	FY Total
ST116	Computational Capability Development for Shock-Wave and High-Strain-Rate Phenomena	\$70435
ST117	High-Level Waste Disposal Optimization	\$56917
WP002	NASA/DOE Europa Analog Project to Conduct a Model Life Search Mission	\$1499
WP008	Chemical Downhole Steam Generator	\$1344
Total # of Projects for INL:	116	Total Cost for INL: \$16028549

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KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC02009-(703531)	Software-Defined Radio Systems	\$43016
KC03002-(703538)	Evaluate the Feasibility of a Single-Containment Vessel	\$292422
KC03009-(703545)	High-Precision Laser Micromachining Development	\$19645
KC03011-(703547)	High-g Penetrator Telemetry Electronics(703547)	\$19850
KC04003-(703568)	Molecular Design & Optimization of Urethane Encapsulants	\$54903
KC04004-(703569)	Laser Welding of Small Parts Fabricated Using LIGA Processes	\$85833
KC04008-(703573)	Multi-chip Module Transverter Circuit	\$126329
KC04009-(703574)	Application of Diskless Workstation Technology to Computationally Intensive Manufacturing Applications	\$15571
KC04010-(703575)	Setback Generator for Microfiring Systems	\$165947
KC04014-(703579)	Robust Feature Extraction/Pattern Matching Algorithms in Unconstrained Environments	\$159970
KC05001-703580	MILES Compatible Semi-Automated Pistol	\$4926
KC05002-703581	Continuous Air Monitor for Light Elements	\$65567
KC05003-703582	Flexible Telemetry Transceiver	\$145553
KC05004-703583	Ultrasonic Encapsulation Removal System	\$14711
KC05005-703584	Accessible Electronics for High-G Packaging	\$56689
KC05006-703586	Anti-Tamper Technology	\$85018
KC05007-703587	Development of Microwave Packaging for RF MEMS	\$87570
KC05008-703588	Development of Carotenoids and Poly-Ynes as Hydrogen Getters	\$91429
KC05009-703589	Model-Based Machining Simulation	\$63187
KC05010-703590	Wireless Sensor Network	\$141211
KC05011-703591	FPGA Based Wireless Data Collection and Monitoring System	\$168541
KC05012-703592	Development of Simulation Tools for Vulnerability Assessments	\$34630
KC05013-703593	Miniaturized DSW Surface-Mount Quadrupler	\$36583
KC05014-703594	Bore-Aligned, Miniaturized Engagement Simulation System (ESS) Transmitter	\$100781
KC05015-703596	High-Precision, Multi-Point Distributed Initiation Systems Technology	\$48912
KC05016-703597	3-D Capacitor fabrication Using Selective Laser Sintering	\$77694
KC05017-703598	Zigbee Wireless Sensor Network Development	\$20102
KC05018-703600	NNSA OST Escort Night/Vision System	\$3384

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KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC05019-703601	Fequency Selective RF Palette	\$268343
KC05020-703602	Resistance Bonding using LIGA membranes	\$39933
KC05021-703603	Ultrasonic Evaluation of Nuclear-Grade Steel Bar Stock	\$62215
KC05022-703604	Implementing Zero-Shrink, Low-Temperature Cofired Ceramic Technology	\$29280
KC05023-703605	Optically Triggered Pulse Power Switch	\$61784
KC05024-703606	Wideband High-G Subterranean Transceiver	\$107090
KC05025-703607	Provide proof-of-concept utilizing Charge Deep-Level Transient Spectroscopy (Q-DLTS) and diamond sensors for detection of organics	\$131540
KC05026-703608	Negative Poisson Ratio Structure	\$196121
KC05027-703609	Online Process Monitoring and Control	\$60067
KC05028-703610	Physical Vapor Deposition (PVD)of Thin Films on 3-Dimensional Objects	\$38299
KC05029-703611	Digitization of Rapid Process Scheduling into Performance-Based Scheduling	\$238818
KC05030-703612	Single-Shot Photo-Conductive Surface Switch (PCSS) in Gas Discharge Mode	\$32981
KC05031-703613	RFID Inventory and Tracking System (RITS)	\$8702
KC05032-703614	Missile Defeat Technology Study	\$157249
KC05033-703615	Vacuum Sealing Microelectronics and Packaging	\$113963
KC05034-703616	Development of Manufacturing Processes for Lead and Lead Alloys	\$24645
Total # of Projects for KCP:	44	Total Cost for KCP: \$3801004

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-2001511DR	Development of High Performance Cold Neutron Spectroscopy at LANSCE	\$437799
LANL-20020052DR	Applied Quantum Technologies	\$400381
LANL-20020225ER	Interfacial Solutions: Quasiliquids and Tropospheric Chemistry	\$38938
LANL-20020360ER	New Modeling Techniques for Strongly-Coupled Atmospheric Processes that Occur in Wildland Fires	\$24021
LANL-20020393PRD3	Synthesis and Characterization of Nanomaterials	\$18904
LANL-20020459ER	Ultrahigh Weight Biomolecule Separation and Detection	\$211385
LANL-20020517PRD4	The Synthesis of Metal Complexes Containing Actinide-Transition Metal and Actinide-Actinide Metal Bonds	\$26614
LANL-20020521PRD4	Novel Structures Based on Multicompartment Self-Assembly of Fluoro/Hydro-Carbon Surfactants	\$38857
LANL-20020525PRD4	Electronic Pumping of Nanocrystalline Quantum Dots	\$43715
LANL-20030022DR	Novel Physical Behavior of Nanostructured Materials Derived from Interface Atoms	\$1070925
LANL-20030029DR	Structural Bioinformatics: Inferring Protein Function from Sequence and Structure on a Genomic Scale	\$1368472
LANL-20030030DR	Neutrino Physics and Fundamental Symmetries	\$1393459
LANL-20030036DR	New States of Matter Near Zero-Temperature Phase Transitions	\$1784533
LANL-20030037DR	Physics-Based Analysis of Dynamic Experimentation and Simulation	\$1125739
LANL-20030038DR	Stochastic Closure for Multi-Scale Simulations	\$489665
LANL-20030050DR	Scaling Relationships in Biology: Developing and Applying a Unifying Theory from Molecular through Biosphere Scales	\$1649309
LANL-20030059DR	Clathrate Hydrate Science and Technology	\$1337432
LANL-20030067DR	Water on Mars	\$1147441
LANL-20030068DR	Non-equilibrium Electron Spin Transport and Dynamics in Solids	\$1455216
LANL-20030069DR	Interfacial Energy and Charge Transfer in Multifunctional Bio-Inspired Nano-Assemblies	\$1223359
LANL-20030084DR	Quasiparticles and Phase Transitions in High Magnetic Fields: Critical Tests of our Understanding of Plutonium	\$1393992
LANL-20030091DR	Actinide Partitioning at Solid-Solution Interfaces	\$919613
LANL-20030119ER	Synthesis of Labeled Glycosaminoglycans for Structural and Dynamical Studies of Macromolecular Complexes	\$343352
LANL-20030129ER	Collisionless Magnetic Reconnection in 3D Geometries	\$277253

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030137ER	Improving Local Search	\$257343
LANL-20030138ER	Computational Study of Intense Short-Pulse Laser-Matter Interactions	\$275576
LANL-20030151ER	Calculating the Kaon Bag Parameter B_K on Unquenched Lattices	\$254060
LANL-20030162ER	Automatic Detection of Salient Objects in Real-world Imagery	\$244887
LANL-20030169ER	Determining Fundamental Roles of Magnetic Field in the Universe: Laboratory Plasma Flow Experiments on Magneto-Rotational Instability (MRI) and Laminar Plasma Dynamo	\$263158
LANL-20030179ER	Bacillus Anthracis Iron Acquisition	\$269930
LANL-20030181ER	Efficient Computation of Free Energy Differences Relevant to Rational Drug Design	\$214229
LANL-20030210ER	Measure-Valued Solutions of the Lagrangian-Averaged Euler Equations	\$254028
LANL-20030216ER	Strong Ultrafine Grain Metals by Severe Plastic Deformation and Strain Path Changes: Application to Beryllium (Be)	\$258995
LANL-20030225ER	Processor-Coupled Computing Fabric	\$207939
LANL-20030227ER	Estimation of Aquifer Recharge Using Time-Lapse Gravity Surveys	\$222592
LANL-20030232ER	Catalysis by Artificial Inorganic Enzymes	\$260972
LANL-20030248ER	Distributed Multi-scale Markov Chain Monte Carlo for Uncertainty Quantification in Inverse Problems	\$209982
LANL-20030251ER	Using Neutrons to Explore Peculiar Elastic Behavior of Rocks	\$185627
LANL-20030258ER	Immune Cell-Based Biosensor for Rapid Pathogen Detection and Identification	\$270485
LANL-20030261ER	Transport Studies of Vortex Motion in High Temperature Superconductors, MgB(2), and Borocarbides.	\$188896
LANL-20030292ER	Synthesis and Characterization of Selective Ligands	\$428689
LANL-20030301ER	Magnetocarcinotherapy: A Novel Molecular Imaging Diagnostic and Treatment Method for Cancers	\$270600
LANL-20030310ER	Polymer-Assisted Aqueous Deposition (PAAD) of Metal-Oxide Films	\$260563
LANL-20030317ER	Three Dimensional Effects in Core-Collapse Supernovae: Rotation, Convection and Neutron Star Kicks	\$183927
LANL-20030351ER	Computational Schemes for Multiscale Modeling of Polymers	\$282284
LANL-20030352ER	Double Beta Decay	\$227104
LANL-20030355ER	Thin-Film Semiconductor Sensors on Polycrystalline Substrates	\$237787

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030356ER	An Integrated Microarray-Based Platform for Sensitive High-Throughput Pathogen Detection and Identification	\$192461
LANL-20030359ER	Electrically Pumped Colloidal Nanoemitters: Combining Top-Down and Bottom-Up Approaches in Nanoscale Engineering	\$250698
LANL-20030360ER	Viral Invasion: Breaching the Cells Outer Defenses	\$212055
LANL-20030363ER	Testing for a Relativistic Symmetry in the Nucleon-Nucleon Interaction	\$169748
LANL-20030365ER	Cosmological Vacuum Energy	\$243305
LANL-20030398ER	Desalination by Molecular Design	\$214707
LANL-20030400ER	Atomic Level Engineering of Nanostructures and Devices	\$255690
LANL-20030419DR	Assembly and Actuation of Nanomaterials Using Active Biomolecules	\$451777
LANL-20030420DR	Active Photonic Nanostructures	\$457699
LANL-20030486DR	Astrophysical Survey Science and Technology	\$465894
LANL-20030487DR	Physics of Information	\$1013200
LANL-20030488ER	Formation and Distribution of Galaxies: An Advanced Computational Approach	\$334424
LANL-20030497PRD1	Analysis and Generation of Magnetic Flux Pinning Sites in YBa ₂ Cu ₃ O _{7-d} Films	\$25203
LANL-20030519PRD1	Solid-State Actinide Chemistry	\$5085
LANL-20030522PRD1	Searching for Superhard Materials from Nanometric Scale and at Extreme Conditions	\$45636
LANL-20030526PRD1	Identification of the Energy Gap in the 2D Metallic State of Strongly Interacting Fermions	\$108665
LANL-20030544PRD1	Ultracold Collisions of Charged Particles	\$82383
LANL-20030549PRD1	Physics of Metallo-Organic / Organic Materials and Devices	\$88271
LANL-20030562PRD1	Synthesis of Continuous Carbon Nanotubes	\$48447
LANL-20030568PRD1	Interaction of Magnetism and Superconductivity in Novel Superconductors	\$134894
LANL-20030579PRD1	Cosmic Cinematography: Opening a New Window for Discovery in Astrophysics	\$132433
LANL-20030597ER	LOFAR - A Low Frequency Radio Interferometer for Astronomy and Space Sciences	\$183056
LANL-20030604ER	Preparation & Characterization of Inorganic & Organic High-Nitrogen Energetic Materials	\$34778
LANL-20030622ER	Complex Dynamical Earth Systems	\$434619

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030623ER	Space Weather Foundations	\$324753
LANL-20030624ER	Dynamical Astrophysics	\$517780
LANL-20030625ER	Planetary Geophysics-Core to Crust	\$395857
LANL-20030635PRD2	Theoretical and Computational Studies of the Behavior of Plasma at the Edge of a Tokamak	\$85498
LANL-20030637PRD2	Global Three-Dimensional Magnetospheric Structure	\$84389
LANL-20030642PRD2	Superheating Upon Superfast Dynamic Loading	\$54653
LANL-20030643PRD2	Theoretical Studies of Advanced Materials	\$54301
LANL-20030663PRD2	Electric Field Control of Optical and Electronic Properties of Semiconductor Quantum Dots	\$71999
LANL-20030666PRD2	Host-Pathogen Interactions of Intracellular Microbes	\$55292
LANL-20030680PRD2	Pattern Formation and Dynamics in Systems with Competing Forces	\$78788
LANL-20030699PRD3	Trace-Level Analysis of Radionuclides Using Membrane-Based Ion-Selective Chemical Sensors	\$69026
LANL-20030718PRD3	Neutrino Physics, Astrophysics and Cosmology	\$108934
LANL-20030744PRD3	Investigation of Electrical Properties of [Ba _{1-x} Sr _x TiO ₃ /Ba _{1-y} Sr _y TiO ₃] Multilayers for Applications in Tunable Microwave Devices	\$107828
LANL-20030766PRD3	Development of Self-Monitoring and Self-Repairing Structural Systems using Smart Materials	\$90738
LANL-20030770PRD3	Short-term Decoherence in Quantum Optics	\$95431
LANL-20030811PRD4	Fracture and Damage Evolution of Fluorinated Polymers	\$88548
LANL-20030837PRD4	An Organometallic Chemistry Approach to the Preparation of Fluorinated Polymers	\$118017
LANL-20030839ER	Proteins in Protein Networks	\$387920
LANL-20030840PRD4	Novel Antibiotic Targets for B. anthracis: Fosmidomycin and Siderophores	\$118080
LANL-20030859PRD4	Fault Tolerant and Recovery-Oriented Computing	\$121612
LANL-20030861PRD4	Mechanisms of Creep in Bulk Metallic Glasses	\$103964
LANL-20030865PRD4	Compton Imaging and High Energy Astrophysics	\$119053
LANL-20030874PRD4	Ion Beam Slicing With Point Defect Engineering	\$116288
LANL-20040014DR	Localization and Itinerancy in Plutonium	\$2025300
LANL-20040031DR	Scalable Reconfigurable Computing: Exploiting an Exponential Increase in Computational Density	\$1155082

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040040DR	Search for Variation of the Fine Structure Constant with Optical Frequency References	\$1366360
LANL-20040042DR	Science of Geological Carbon Sequestration: Integration of Experimentation and Simulation	\$1031759
LANL-20040049DR	Solid-State Quantum Information Processing: A New Approach to Demonstrate Quantum Entanglement	\$1152779
LANL-20040064DR	Energetic-Particle Interactions with Dense Plasmas: A Study Relevant to Boost and to Fast Ignition Using Laser-Driven High-Current Ion Beams	\$1523993
LANL-20040069DR	High-Power MM-Wave Source Technology	\$1341822
LANL-20040072DR	Radiography with Background Radiation	\$1517203
LANL-20040087DR	Understanding the Molecular Mechanisms of Pathogen Recognition by the Immune System: Biothreat Reduction through Predictive Science	\$1446738
LANL-20040093DR	Understanding Electronic and Magnetic Communication Between f-Electrons in Actinide and Lanthanide Materials	\$1409648
LANL-20040104DR	Testing Time-Reversal Symmetry with Ultracold Neutrons and with Solid State Systems	\$1241366
LANL-20040120DR	Fluorobody Switches: Recognition Proteins Which Fluoresce Upon Binding Targets	\$1016049
LANL-20040134DR	Bose-Einstein Condensate Physics: Dynamics and Applications	\$1630491
LANL-20040141DR	Statistical Physics of Infrastructure Networks	\$1646262
LANL-20040167ER	Exploring the Turbulent-Viscosity Effect in Solar-Wind/Magnetosphere Coupling	\$113066
LANL-20040171ER	Fermion Quantum Phase Transitions	\$286051
LANL-20040184ER	Response Networks of M. Tuberculosis and Bio-Threat Agents	\$234771
LANL-20040187ER	Electroweak Symmetry Breaking	\$323796
LANL-20040193ER	Dark Lightning: Throwing Light on Monster Convective Storms	\$187878
LANL-20040195ER	Precision Cosmology: A First Principles Approach to Galaxy Clustering	\$326132
LANL-20040201ER	The Dynamic Response of Polymers Under Stress Using a Unique Probe for the Molecular Events Governing Materials Responses	\$249907
LANL-20040212ER	Detecting Weak Gaseous Plumes in Hyperspectral Remote Sensing Imagery	\$275048
LANL-20040213ER	Ion-Beam Synthesis and Luminescence Characterization of a New Class of Nanomaterials-Nanophosphors	\$257702
LANL-20040218ER	Error-Minimizing, Implicit Adaptive-Grid Solutions of Time Dependent Problems	\$176128

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040236ER	Computational Complexity and Quantum Entanglement	\$279569
LANL-20040237ER	New Mathematical Tools for the Quantum Dynamics of a Bose-Einstein Condensate	\$222567
LANL-20040256ER	Hybrid Density Functional Theory Investigations in Condensed Matter	\$236398
LANL-20040259ER	Nonlinear-Acoustic Tomographic-Imaging of Damage in Solids	\$282199
LANL-20040262ER	Understanding and Predicting the Initiation of DNA Transcription	\$229466
LANL-20040284ER	The Dynamics of Two-Dimensional Turbulence	\$255403
LANL-20040291ER	Tracking Single Molecules in Three Dimensions	\$245583
LANL-20040294ER	Study of Phases with Hidden Order Parameter in the Actinides and Other Strongly Correlated Electron Systems	\$259325
LANL-20040295ER	Design Principles of Genetic Regulatory Networks	\$262263
LANL-20040301ER	Understanding Global Planetary Processes Through a Study of the Moon's Surface Composition	\$287405
LANL-20040326ER	Massively Parallel Fabrication of Complex Nanoscale Structures in Soft Materials	\$225117
LANL-20040344ER	Understanding and Controlling the Chemistry of Biocidal Polymers	\$211127
LANL-20040358ER	Measurement of Vibrational Anharmonicities for Chemical Dynamics	\$263287
LANL-20040359ER	Spatially-Isochronous Time-of-Flight Mass Spectrometer	\$216011
LANL-20040379ER	Modeling Invariance in Data Space	\$350113
LANL-20040391ER	Quantum Devices for Electronic Circuitry and Advanced Detection	\$312398
LANL-20040393ER	Genetic Programs Underlying Key Physiological States in Burkholderia Pseudomallei	\$178139
LANL-20040408ER	Coherent Control of the Raman Fingerprint Spectrum Via Single-Pulse Coherent Anti-Stokes Raman Scattering	\$349665
LANL-20040412ER	Mining the Sky with Both Eyes Open: Stereoscopic Monitoring of the Night Sky	\$253145
LANL-20040415ER	Supernovae Neutrinos	\$204943
LANL-20040419ER	Statistical Models for Natural Graphs	\$192402
LANL-20040425ER	A Dynamic 2-D Ultrasonic Particle Trap for Particle and Cell Array Processing of Biological Assays in Micro-Fluidic Channels	\$259499
LANL-20040430ER	Synthesis of Continuous Carbon Nanotubes	\$297270
LANL-20040438ER	Quantum Control and Information Processing Using Semiconductor Quantum Dots	\$272021

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040454ER	High Throughput Isolation of Optimal Protease Substrates	\$314173
LANL-20040461ER	Secure Communications in Fiber Links Using Randomness and Nonlinearity of Optical Fibers	\$210086
LANL-20040478ER	Hyperthermal Surface Ionizer for Aerosol Chemical and Biological Analysis	\$269989
LANL-20040480ER	Self-Healing High-Performance Parallel Computers	\$243091
LANL-20040481ER	Efficient Modeling of Systems with Uncertainty on Multiple Scales	\$216129
LANL-20040508ER	The Synthesis of Single Walled Carbon Nanotubes with Specific Diameters	\$276381
LANL-20040840DR	Computational Models of the Water Cycle of Semi-Arid Basins	\$501120
LANL-20040842DR	Fission Fragment Physics in Extreme Environments (U)	\$424588
LANL-20040844DR	Phase Transitions and Strong Anharmonicities in Plutonium	\$1932291
LANL-20040848ER	Exploring Novel Magneto-Electric Phenomena in Frustrated Spin Systems	\$198102
LANL-20040849ER	Imaging Optical Interferometry	\$329761
LANL-20040862ER	Software-Based, Power-Aware Computing	\$120737
LANL-20040882PRD1	Exploring Protein Cameleons Using Single Molecule Spectroscopy	\$113109
LANL-20040884PRD1	Energy Dissipation in Laminate and Particulate Composites With Nano- or Micro-meter Phases	\$124613
LANL-20040885PRD1	Mechanistic Studies on Fe(III)(hydr)oxide Dissolution and Actinide Mobilization in an Aqueous Aerobic Environment	\$109121
LANL-20040895ER	Probing Nucleosynthesis with DANCE	\$60414
LANL-20040897PRD1	Supernova Light Curves	\$85692
LANL-20040908PRD1	Thermal Shrinkage and Compressional Expansion in Framework Oxides: Underlying Structural Mechanisms and Phase Stability	\$137928
LANL-20040909PRD1	New Theoretical and Computational Approaches to Ultra-Relativistic Heavy Ion Collisions	\$144610
LANL-20040919PRD1	Optical Probing of Dense Structured Media such as Clouds: 3D Radiative Transfer at Work	\$139028
LANL-20040923ER	Development of Technology for Particle Astrophysics and Other Applications	\$37062
LANL-20040937PRD2	Valence Ambiguity in Organoactinide Chemistry	\$84503
LANL-20040941PRD2	Magnetic Field Induced Quantum Critical Points in Correlated Electron Systems	\$120261
LANL-20040953PRD2	Amine-Boranes for Chemical Hydrogen Storage	\$112321
LANL-20040954PRD2	Quantifying Information Flow and Information Integration in Complex Networks	\$108538

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040961PRD2	Femtosecond Optical Combs for Precision Spectroscopy	\$114665
LANL-20040967PRD2	High Resolution Retinal Prosthesis: Theory and Experiment	\$86035
LANL-20040969PRD2	Coherent Terahertz Radiation From Intense Laser-Produced Plasmas	\$113573
LANL-20040978PRD2	Tunable Photonic Crystal/Quantum Dot Lasers	\$119681
LANL-20040980DR	Advanced Computer Architectures and Algorithmic Implications	\$1236730
LANL-20040985PRD3	MiniBooNE Neutrino Oscillation Analysis	\$119294
LANL-20040991ER	Practical Discharge-Pumped, Dressed Atom, Coherent Light Amplifiers and Generators	\$103256
LANL-20041005PRD3	Bose-Einstein Condensation of Spins in Quantum Magnets	\$115879
LANL-20041010DR	Dynamics of Complex Networks: Biology, Information, and Security	\$656392
LANL-20041027PRD3	Materials Interactions with Terahertz Radiation	\$143119
LANL-20041031PRD3	Dynamics of Quantum Phase Transitions	\$79136
LANL-20041034PRD3	Rydberg Atom Interactions in Fields and Plasmas	\$102271
LANL-20041040PRD3	Predictive Stellar Evolution	\$83925
LANL-20041043PRD3	Gamma-Ray Bursts Afterglows in the Swift Era: Perspectives of New Major Discoveries	\$61032
LANL-20041061PRD3	Investigation of the Dynamics of Protein Misfolding and Aggregation	\$91421
LANL-20041075ER	Investigations into the Fundamental Chemistry and Structure of Hybrid Organic-Inorganic Materials	\$139448
LANL-20041078ER	Nano-Scale Physics and Near-Contact Hydrodynamics	\$268855
LANL-20041086ER	Nuclear Materials Detection Algorithm Development for Port-of-Entry Applications	\$106626
LANL-20041091ER	Generation of Novel Materials with Applications to L.A.N.L. Programmatic Goals	\$296871
LANL-20041097PRD4	High Precision Measurements of CO2 and O2 to Determine Variability of Soil Carbon Turnover Time	\$126410
LANL-20041100PRD4	Thermal Transport: a probe of the Bose-Einstein Condensate in Quantum Magnets	\$134151
LANL-20041105PRD4	Ferroic Films for Multifunctional Devices	\$53970
LANL-20041118PRD4	Intercalated Nanocomposites - Innovative Fuel Cell Catalysts	\$84704
LANL-20041122PRD4	Nonlinearity and Chaos in Spatially Extended Dynamical Systems	\$74660

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20041123PRD4	New Frontier in Modeling Multi-Scale Processes Involving Reactive Transport in Porous Media	\$42627
LANL-20041131PRD4	Quantum Simulations in Optical Lattices	\$76279
LANL-20041132PRD4	Ionic Liquids: A New Platform for Sensors	\$97763
LANL-20050014DR	Resolving the Aerosol-Climate-Water Puzzle: Predictive Science for Global Stability and Security	\$1610953
LANL-20050031DR	Coming Out of the Cosmic Dark Ages - The First Stars in the Universe	\$1384313
LANL-20050043DR	Pu-H Interactions: Studies of Plutonium Hydride Phenomena (U)	\$1302890
LANL-20050064DR	Protocell Assembly	\$1418062
LANL-20050066DR	Lagrangian Measurements of Fluid Mixing	\$1590251
LANL-20050076DR	Cold Atom Quantum Simulators	\$1459209
LANL-20050107DR	Material Response During Dynamic Loading at Subpicosecond Time and Nanometer Length Scales	\$1464217
LANL-20050123DR	Metabolome Scale Characterization of the Biothreat Agent, Bacillus anthracis	\$1385258
LANL-20050127DR	Be-Specific Human Immune Response and Development of Chronic Beryllium Disease	\$1450913
LANL-20050155DR	Rational Vaccine Design: Theory and Experimental Validation	\$1424193
LANL-20050158ER	Salient Anomaly Detection: In Search of the Unknown in Images and Signals	\$269982
LANL-20050161DR	Thinking Telescopes: Pursuing a New Paradigm for Discovery in Observational Science	\$1539460
LANL-20050164DR	Probing New Physics with Ultra-Cold Neutrons	\$1067374
LANL-20050184DR	New Americium Delta-A Metric for Primary Certification (U)	\$1601980
LANL-20050199ER	Processing and Properties of Bulk Nanostructured Alloys	\$193286
LANL-20050246ER	Gamma-Ray-Channeling Optics	\$276095
LANL-20050271ER	A System-Scale Theory for Fast Magnetic Reconnection	\$191174
LANL-20050277ER	Laser-Cooling Molecules to Millikelvins	\$265803
LANL-20050290ER	A Microfabricated Single Molecule Sorter	\$333875
LANL-20050304ER	Redox Interplay Underpinning 4f-Element Metallocene-Based Magnetic Systems	\$200402
LANL-20050306ER	Exploration of the Role in Interfaces in Nanolayered Composites in Creating Radiation Damage Tolerant Materials.	\$269968
LANL-20050307ER	HAWC: The Next Generation VHE All-Sky Gamma Ray Observatory	\$172922

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20050315ER	Implicit Adaptive Mesh Refinement: a Magnetohydrodynamics Application	\$196473
LANL-20050323ER	Testing Embedded Model Assumptions of Stable Isotopic Dynamics with Continuous Sampling: Are Modelers' Assumptions of the Global Carbon Cycle Correct?	\$241837
LANL-20050343ER	Atomistic Studies of Fast Chemical Processes in Nano-Structured Metastable Composites	\$216849
LANL-20050360ER	Low-Threshold, Single-Exciton Nanocrystal Lasing Using Engineered Exciton-Exciton Interactions	\$294872
LANL-20050363ER	Combustion Enhancement Using Plasma	\$252425
LANL-20050377ER	Observing Individual Antibody-antigen Encounters for Decades of Timescales	\$224965
LANL-20050379ER	Taming and Accelerating Particle-In-Cell	\$211340
LANL-20050388ER	Spatio-temporal Plasmonics: Controlling Plasmon Polaritons at the Nanoscale	\$315177
LANL-20050400ER	Eliminating PCR in Biothreat Detection: Highly Multiplexed Nucleic Acid Dipsticks for Rapid and Sensitive Pathogen Identification	\$336907
LANL-20050402ER	Immune Response to West Nile Virus in Birds	\$307914
LANL-20050411ER	Quantitative Modeling of Living Neuronal Networks In Vitro	\$266515
LANL-20050425ER	Computational Foundations for a New Class of Digital Filter Banks	\$240264
LANL-20050430ER	Fulde-Ferrell-Larkin-Ovchinnikov Inhomogeneous Superconducting State	\$360295
LANL-20050480ER	The First Complete Classification Algorithm	\$264801
LANL-20050484ER	Novel High-Speed Electro-Optic Switches Based on Domain Microoptics Embedded in a Ferroelectric Chip	\$246266
LANL-20050506ER	Hierarchical Assembly of Porous Materials: Obeying Bio-Inspired Allometric Scaling Laws	\$181691
LANL-20050531ER	Neyman-Pearson Learning	\$235072
LANL-20050540ER	A New Form of Secure Communication; Spatial Encryption Using superluminal Sources	\$197654
LANL-20050559ER	Plasma Catalyzed Coal Gasification	\$248620
LANL-20050566ER	Ion Beam Synthesis of Ferromagnetic Semiconductors	\$243600
LANL-20050583ER	High Efficiency Carrier Multiplication Using Impact Ionization in Semiconductor Quantum Dots	\$249130
LANL-20050626ER	High-Valent Ruthenium Oxides on Tio2: Toward the Development of Light-Driven Oxidation Catalysts	\$307914
LANL-20050631DR	Nonlinear Behavior in Complex Systems	\$618455

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20050632DR	Cooperative Phenomena in Soft Matter	\$612999
LANL-20050633DR	Exploiting Emergent Materials Behavior on the Nanoscale	\$909838
LANL-20051086PRD1	Traveling-Wave Tube Bandwidth and Linerity Study	\$34666
LANL-20051087ER	Antineutrino Monitoring of Reactors	\$306593
LANL-20051090ER	Nanoscale Metal Oxide Thin Film Deposition and Interactions with Substrates	\$72614
LANL-20051092ER	Design of Experiment Construction and Assessment	\$72392
LANL-20051098PRD2	Metallic Quantum Dot Superlattices	\$65892
LANL-20051100PRD1	Hybrid Quantum-Dot/Photonic-Crystal Structures	\$135774
LANL-20051102PRD1	Improving the Predictive Capabilities of Complex, Spatially Distributed Environmental Models	\$73704
LANL-20051104PRD1	Trapped Ion Quantum Simulations	\$26126
LANL-20051116DR	Physical Modeling of Biomolecules and Ribonucleo-Protein Complexes of Importance to Pathogenicity	\$637521
LANL-20051118PRD1	Control of Inelastic Collisions for Improved Atom Interferometry	\$57810
LANL-20051121PRD1	Measuring Neutrino Properties with Oscillation Experiments	\$57474
LANL-20051122PRD1	Photovoltaics of Nanocrystalline TiO2	\$68528
LANL-20051124PRD1	Tuning Plutonium Compounds Through the Localized/Itinerant Crossover	\$107200
LANL-20051125PRD1	W-Band Photonic Band Gap Structure Research	\$64798
LANL-20051127PRD1	Artificial Design of Novel Multiferroic Materials	\$84460
LANL-20051132PRD1	Exploration of Deformation Physics at Nanometer Scale	\$42709
LANL-20051143PRD1	Hydrogen Storage in Novel Molecular Compounds	\$5815
LANL-20051148PRD2	New Paradigms for Modeling Communicable Diseases	\$70313
LANL-20051149DR	Cross sections for the Isomer of 235U	\$745212
LANL-20051159ER	Comparative Genomic Analysis to Identify Unique Signatures in Pathogen Genomes	\$98013
LANL-20051164DR	Nanoscale Fluctuations in Multifunctional Materials	\$645377
LANL-20051169ER	Physics of Astrophysical Jets	\$257565
LANL-20051239PRD3	Computer Simulations of Phase Stability and Microstructure Evolution in Alloys Using Hybrid Molecular Dynamics and Phase-Field Approaches	\$27719
LANL-20051257PRD3	Investigation of Fuel Cell Electrocatalysts for Improved Activity and Durability	\$4802
LANL-20051265PRD3	Three-dimensional Micro Architectures for Neural Interfaces	\$29724

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20051282PRD3	Theory and Trapped Ion Quantum Simulations	\$8137
LANL-20051284PRD3	Two Dimensional Spectroscopic Studies of Biexcitons in Quantum Dots	\$20641
LANL-20051304ER	DNA Concentrator	\$100781
Total # of Projects for LANL:	269	Total Cost for LANL: \$104703784

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Project List -- Fiscal Year 2005

LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB02045	Parallel Methods for Robust Optimization and Uncertainty Quantification	\$135432
LB03008	Application of Real-Time PCR with Reverse Transcription for Quantification of Specific Microbial Activity in Complex Communities	\$80000
LB03012	Interactive Visualization Methods for Exploration and Comparison of Multi-Billion Base Pair Sequence Data	\$78290
LB03021	Optimal Solvers for Infinite-Dimensional Hamiltonian Systems	\$100032
LB03028	Electron Production and Collective Field Generation in Intense Particle Beams	\$129792
LB03030	Evolution of Computer Architecture Alternatives	\$165524
LB03035	Microscopic Theory of Protein Surface: Structure, Response, and Design	\$113051
LB04003	High Throughput Strategy for Protein Complex Identification	\$199792
LB04004	Autonomous Sensors for Ocean Dissolved Organic Matter	\$249999
LB04005	Development of Biosensors for Endocrine Disrupting Compounds in Agricultural Watersheds	\$89997
LB04007	Techniques of Sample Controls for a Transmission Electron Aberration-corrected Microscope	\$248845
LB04008	Gold-catalyzed Synthesis of Germanium Quantum-dot Arrays	\$99920
LB04009	Next Generation Codes for Modeling Subsurface Processes	\$119915
LB04010	Molecular Microscopy and Tomography	\$199770
LB04011	Functional Interpretation of Cancer Genomes	\$596228
LB04012	Designing a Novel Reactor Neutrino Experiment for Measuring the Mixing Angle Theta13	\$299495
LB04013	Coherent X-ray Diffraction Imaging (CXDI)	\$246923
LB04014	Neuroimaging with Advanced Molecular Probes	\$367673
LB04017	Research and Development for Double Beta Decay Experiments	\$299999
LB04018	Nanoscale Lithography to Guide Self-Assembly for the Creation of Functional, Hierarchical Nanostructures	\$100078
LB04019	Critical Accelerator Technologies for Future Advanced Light Sources	\$861971
LB04021	Structured Cathodes for Efficient Organic LEDs	\$153769
LB04022	Imaging three-dimensional signaling networks in normal and malignant tissue	\$99709
LB04023	Evaluating Aerosol Effects on Regional and Global Energy and Water Budgets	\$100011
LB04024	Optimizing Genomic Data Storage for Wide Accessibility	\$99001

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB04025	California Water and Energy System: An Approach for Addressing Future Crises	\$199937
LB04026	Making the Most of Sequencing: Improved Assembly, Improved Protocols, and True Comparative Annotation Tools	\$146273
LB04027	Spectroscopy and Dynamics of Pure and Doped Helium Nanodroplets	\$100256
LB04028	Novel high-temperature membranes and electrocatalyst structures for fuel cells	\$149616
LB04029	Advanced Computational Methods for Photon- Molecule Collision Processes	\$299970
LB04030	Ultrafast Magnetization Dynamics	\$149219
LB04034	Advancing the Next Generation of Rock-Fluid Imaging and Stimulation Technologies	\$70000
LB04035	Magnetism at the Nanometer Scale in Spin Polarized Materials	\$80000
LB04037	High Average Power Laser Amplifier	\$482024
LB04038	Gas Phase Studies of the Building Blocks of Life	\$79819
LB04039	Development of Techniques for the Study of Large Macromolecular Complexes Using X-ray Crystallography	\$54420
LB04041	High-throughput Production of Proteins and Protein Complexes	\$120133
LB04043	World Energy Scenarios: The Crucial Role of Energy Demand	\$120588
LB04044	Lensless Imaging of Yeast Cells	\$46269
LB05001	Studies of the Health Effects of Nanostructured Materials	\$297531
LB05002	Advanced Detectors to Understand the Early Universe	\$178455
LB05003	The Behavior and Impact of Nanoparticles in the Environment	\$149777
LB05004	Ultrafast measurements of charge-ordering/disordering in manganites: Development of a femtosecond electron diffraction probe	\$100361
LB05005	Modeling human disease in Drosophila melanogaster	\$149958
LB05006	Organization of Cellular Components on Signaling and Function: Theory and Computation as Essential Complements to Genetic and Biochemical Experiments	\$197913
LB05007	Oxygen Catalysis through Proton and Electron Control: Biomimetic Chemistry for Renewable Energy	\$77150
LB05008	Cryptographic Foundation for New Generation Distributed Systems	\$129171
LB05009	Unmasking the Human Genome Alternative Splicing Program	\$150582
LB05010	Novel Imaging Detectors for Materials and Biology Research	\$394879

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB05011	Micro-characterization and Chemical Micro-dynamics of Atmospheric Mineral Dust	\$99902
LB05012	Constraining Ammonia Emission Inventories for Control of Air Quality	\$230174
LB05013	Synthetic cytoskeleton: Protrusive structures for reconstituted cell motility	\$70560
LB05015	Peer-to-Peer Resource Discovery Framework	\$88226
LB05016	Engineering of Nature's Ion Channels and Transporters to Use Light as Both a Signal and an Energy Source	\$164894
LB05017	Highly Efficient PLED Through Polymer Morphology Control	\$200076
LB05019	Time-resolved X-ray Absorption Spectroscopy of Metalloporphyrins	\$99808
LB05020	Development and Application of Quantum Monte Carlo (QMC) Methods to Biological Systems	\$100336
LB05021	Rapid Characterization of Nucleic Acids using Nanopores	\$148192
LB05022	Enabling High Energy Density Physics	\$371694
LB05024	Left-Handed Nanoscale Meta-Materials: Towards the Optical Domain	\$144557
LB05025	Development of Key Physics and Technical Approaches for the Production of Intense Rare Isotope Beams	\$249808
LB05026	New capabilities in nuclear astrophysics and radiation biology using neutrons at the 88-Inch Cyclotron	\$149974
LB05027	New Directions for Theoretical Physics at the TeV-Scale	\$250055
LB05028	Analysis of High-temperature Polymer-electrolyte Fuel-cell Phenomena	\$90368
LB05029	Enhancing Commodity Processors with Vector Components for Increased Scientific Productivity	\$202832
LB05030	Improved Spectroscopy of Weakly Bound States in Nuclei	\$150000
LB05031	Advanced Computational Tools for Electric Power Systems	\$247799
LB05032	Computational Texture Models for Patterns of Protein Expression	\$73051
LB05033	NanoARPES: A New Detector for Nanometer-scale Electronic Structure Measurements	\$167650
LB05034	Transgenic Mouse Production and Identification of New Genes in Transgenic Mice	\$64983
LB05035	Computational and Theoretical Studies of Bulk and Nano Solid Systems	\$59976
LB05036	Biogeochemical Reaction Rates and Pathways in Porous Media	\$99677
LB05037	A New Approach for the Catalytic Conversion of Methane and other Inert Hydrocarbons	\$79430

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB05038	Experimental Signatures of Deconfined Phases and Phase Transitions	\$68250
LB05039	Low Energy Spread Electron Source	\$127134
LB05040	Computational Analysis of Structural Impacts of Exocyclic DNA Adducts on Specificity and Efficiency of Human Repair Enzymes	\$49921
LB05041	Application of Single Particle Analysis to Transcriptional Complexes Involved in Cell-microenvironment Interactions	\$55435
LB05042	Improved Phase Contrast for Cryo-EM of Biological Machines and Subcellular Structure	\$74908
LB05043	Scientific Basis for Advanced Geologic Storage Technologies	\$164873
LB05044	Statistical Dynamics of Protein Evolution	\$88682
LB05045	Science and Technology of Quantum Materials	\$179986
Total # of Projects for LBNL:	81	Total Cost for LBNL: \$13572728

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
02-ERD-046	Magnetic Transition Metals and Oxides at High Pressures	\$159436
02-ERD-047	A Revolution in Biological Imaging	\$655345
02-ERD-066	Dynamic Simulation Tools for the Analysis and Optimization of Novel Filtration, Sample Collection, and Preparation Systems	\$131090
02-ERD-071	Development of a Quantum-Limited Microwave Amplifier using a Direct Current Superconducting Quantum Interference Device	\$120473
03-ERD-001	Chemical Dynamics of High-Pressure Interfaces	\$210541
03-ERD-002	Adaptive Optics Views of the Hubble Deep Fields	\$201446
03-ERD-004	Quantum Electrodynamics and Electron Collisions in the Superstrong Fields of K-Shell Actinide Ions	\$352370
03-ERD-005	Exploring Properties of Quantum Chromodynamics with Proton-Nucleus and Deuteron-Nucleus Collisions	\$384091
03-ERD-006	Correction of Distributed Optical Aberrations	\$237923
03-ERD-007	Ultrafast Radiation Detection by Modulation of an Optical Probe Beam	\$303982
03-ERD-008	Electron Production and Collective Field Generation in Intense Particle Beams	\$148908
03-ERD-009	A Coupled Turbulence-Transport Model for Edge Plasmas	\$296337
03-ERD-013	DNA Detection through Designed Apertures	\$228948
03-ERD-015	Strain Rate Scaling of Deformation Mechanisms	\$325290
03-ERD-017	Determining Phonon Dispersion Curves for Delta-Phase Plutonium-Gallium Alloys	\$435923
03-ERD-018	Determination of the Microstructural Morphology of Shock-Induced Melt and Resolidification	\$376017
03-ERD-019	Mononitride Fuel Development for STAR and Space Applications	\$194957
03-ERD-024	Microfluidic System for Solution Array-Based Bioassays	\$343628
03-ERD-027	Adaptive Mesh Refinement Algorithms for Parallel Unstructured Finite Element Codes	\$259378
03-ERD-031	Detection and Tracking in Video	\$300267
03-ERD-033	Scalable Discretization-Enhanced Solvers	\$319729
03-ERD-042	Predicting the Effects of Climate Change and Variability on Water Availability	\$306581
03-ERD-044	Colliding Nanometer Beams	\$312784
03-ERD-050	Carbon-Nanotube Permeable Membranes	\$206160
03-ERD-051	Development of a Virtual Crystallizer	\$1013227

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-ERD-059	Large-Aperture Diffraction Gratings: The Enabling Technology for High-Energy Petawatt Lasers	\$505466
03-ERD-060	Molecular Engineering of Electrodialysis Membranes	\$740776
03-ERD-061	Parallel Graph Algorithms for Complex Networks	\$442960
03-ERD-062	Microbial Pathways	\$530781
03-ERD-064	A Two-Particle Formulation of Electronic Structure	\$191324
03-ERD-067	Nitrate Biogeochemistry and Reactive Transport in California Groundwater	\$503951
03-ERD-068	The Instrumented Cell	\$780615
03-ERD-070	Laser-Matter Interactions with a 527-Nanometer Drive	\$754747
03-ERD-071	Optics Performance at 1 omega, 2 omega, and 3 omega	\$1033233
03-ERD-072	Characterization and Optimization of High-Energy K-Alpha X-Ray Sources	\$14542
03-ERD-073	A Compact Accelerator for Proton Therapy	\$214013
03-ERD-074	Novel Methods for Bonding Disparate Materials	\$148757
03-ERD-076	Persistent Monitoring Platforms	\$414938
03-ERD-077	Plutonium and Quantum Criticality	\$495218
03-ERI-001	Tectonic Morphochronology of the Southern San Andreas Fault System	\$213800
03-ERI-003	A Computational Design Tool for Microdevices and Components used in Pathogen Detection Systems	\$293498
03-ERI-004	Elucidation of the Mechanism of Gene Silencing using Small Interfering RNA-DNA Hybrid Molecules	\$40565
03-ERI-007	Development of Sample Handling and Analytical Expertise for the Stardust Comet Sample Return Mission	\$470714
03-ERI-009	Force Spectroscopy to Study Multivalent Binding in Protein-Antibody Interactions	\$99360
03-ERI-010	Intracellular Chemical Measurements: A Generalized Approach with High-Spatial Resolution using Functionalized Nanoparticles	\$67677
03-ERI-011	Single Molecule Techniques for the Study of Chromatin Assembly and Remodeling	\$88479
03-ERI-012	Using Femtosecond Laser Subcellular Surgery as a Tool to Study Cell Biology	\$134105
03-LW-001	A High-Efficiency Grazing Incidence Pumped X-Ray Laser	\$116557
03-LW-005	Space-Time Secure Communications for Hostile Environments	\$207914
03-LW-047	Laser-Initiated Nanoscale Molecularly Imprinted Polymers	\$191090

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-LW-059	A Novel Antimatter Detector with Application to Dark Matter Searches	\$185184
03-SI-001	Biological and Synthetic Nanostructures Controlled at the Atomistic Level	\$1564674
03-SI-003	ICE: The Image Content Engine	\$2369251
03-SI-004	Advancing the Technology of Tabletop, Mesoscale Nondestructive Characterization	\$345807
03-SI-005	Pathomics	\$1644195
04-ERD-001	Nonaqueous Phase Liquid Dissolution in Porous Media: Multi-Scale Effects of Dissolution Kinetics on Cleanup Time	\$225097
04-ERD-002	Multiprobe Investigation of Proteomic Structure of Pathogens	\$149997
04-ERD-004	Three-Dimensional Vectorial Time-Domain Computational Photonics	\$245946
04-ERD-005	Infrared Diagnostics for Dynamic Events	\$282139
04-ERD-007	Dynamic Combinatorial Libraries for Target-Driven Ligand Development	\$297093
04-ERD-010	Time-Resolved Dynamic Studies using Short-Pulse X-Ray Radiation	\$494736
04-ERD-012	Locally Adaptive Mesh Refinement for Linearly Scaling Electronic Structure Calculations	\$314045
04-ERD-013	Acoustic Characterization of Mesoscale Objects	\$395566
04-ERD-017	Broadband Radiation and Scattering	\$260905
04-ERD-019	Development of Absolute Spectroscopic Diagnostics for Nonlocal-Thermodynamic-Equilibrium Plasmas	\$236781
04-ERD-020	Electronic Transitions and Phonons in f-Band Metals at High Pressures	\$241476
04-ERD-021	High-Strain-Rate Deformation of Nanocrystalline Metals	\$372219
04-ERD-023	Short-Pulse Laser Absorption and Energy Partition at Relativistic Laser Intensities	\$286432
04-ERD-024	XChem	\$171653
04-ERD-025	Ultrafast Transient Recording Enhancements for Optical-Streak Cameras	\$391755
04-ERD-026	Fission Fragment Sputtering	\$225995
04-ERD-027	Magnetic Dynamos and Stars	\$248493
04-ERD-028	The Creation of a Neutron Star Atmosphere	\$304784
04-ERD-030	Electronic Polymerase Chain Reaction	\$330307
04-ERD-032	New Generation X-Ray Optics: Focusing Hard X Rays	\$394902

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-ERD-033	Nanosecond Ultrasonics to Study Phase Transitions in Solid and Liquid Systems at High Pressure and Temperature	\$362443
04-ERD-036	Multiscale Characterization of Body-Centered-Cubic Crystals Deformed to Large Extents of Strain	\$402584
04-ERD-037	Dynamic Data-Driven Event Reconstruction for Atmospheric Releases	\$1026448
04-ERD-039	Bioforensics: Characterization of Biological Weapons Agents by NanoSIMS	\$193681
04-ERD-040	Developing New Tools for In-Vivo Generation and Screening of Cyclic Peptide Libraries	\$358569
04-ERD-043	Nanomechanics: Strength and Structure for Nanotechnology	\$178729
04-ERD-046	Coupling Micromechanics and Reactive Fluid Flow in Fracture Networks	\$188597
04-ERD-047	Exfiltration Interdiction Algorithm Development	\$179887
04-ERD-048	High-Average-Power, High-Energy, Short-Pulse Fiber Laser System	\$209945
04-ERD-052	A Coupled Computational and Experimental Approach to Determine Functions of Deeply Conserved "Anonymous" Human Genes	\$504343
04-ERD-054	Development and Application of a Predictive Computational Tool for Short-Pulse, High-Intensity Target Interactions	\$381033
04-ERD-057	Surrogate Nuclear Reactions and the Origin of the Heavy Elements	\$283803
04-ERD-058	Stellar Astrophysics and a Fundamental Description of Thermonuclear Reactions	\$238501
04-ERD-059	High-Energy-Density Galaxy Jets	\$333506
04-ERD-060	Carbon Sequestration and Transport in Natural Environments: The Role of Organic Carbon and Microbial Processes in the Ocean--Observations and Modeling	\$188203
04-ERD-064	High-Brightness, Laser-Driven, X-Ray Source for Nanoscale Metrology and Femtosecond Dynamics	\$134907
04-ERD-065	Creating the Core Conditions of Extrasolar and Solar Giant Planets in the Laboratory	\$253933
04-ERD-068	Protein Classification Based on Analysis of Local Sequence-Structure Correspondence	\$379009
04-ERD-069	Ionization Chemistry of High-Temperature Molecular Fluids	\$289213
04-ERD-070	The Large Synoptic Survey Telescope and Foundations for Data Exploitation of Petabyte Data Sets	\$339253
04-ERD-071	Ultrafast, In-Situ Probing of Shocked Solids at the Mesoscale and Beyond: A New Paradigm for Materials Dynamics	\$1241833
04-ERD-076	Molecular Radiation Biodosimetry	\$807065

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Project ID	Project Name	FY Total
04-ERD-084	Characterizing the Regulatory Genome: Transcription Factor Proteins and Gene Regulation Networks in Living Cells	\$1301270
04-ERD-085	New Fragment Separation Technology for Superheavy Element Research	\$273484
04-ERD-086	Electro-Thermal-Mechanical Simulation Capability	\$445561
04-ERD-088	A New "Natural Neighbor" Meshless Method for Modeling Extreme Deformations and Failure	\$312424
04-ERD-093	An Integrated Laboratory for the Study of Interventional Device Dynamics	\$243520
04-ERD-095	Internet Ballistics: Identifying Internet Adversaries Despite Falsified Source Addressing	\$181235
04-ERD-102	Petascale Simulation Initiative	\$1354274
04-ERD-103	De Novo Identification of Regulatory Regions in Intergenic Spaces of Prokaryotic Genomes	\$356305
04-ERD-104	Time-of-Flight, Secondary Ion Mass Spectrometry Measurement of Metabolites from Single Cells	\$274060
04-ERD-105	NanoBIS Determination of the Unoccupied Electronic Structure of Pu	\$319311
04-ERD-106	Mapping Phonons at High-Pressure: Phase Transformation, Phase Stability and Elastic Anisotropy	\$191956
04-ERD-107	Nanomaterials for Radiation Detection	\$299552
04-ERD-108	Non-Equilibrium Phase Transitions	\$278663
04-ERI-004	Mission to Very Early Earth	\$220283
04-ERI-009	Calcium Dynamics in Human Bone	\$268882
04-ERI-013	Iodine-129 Accelerator Mass Spectrometry for Earth Science, Biomedical, and National Security Applications	\$229906
04-ERI-014	Carbon Flux in a California Grassland Soil Sequence: The Role of Dissolved Organic Carbon in Carbon Sequestration	\$180814
04-ERI-015	Single-Cell Level Investigation of Cytoskeletal Response to External Stimuli	\$102227
04-FS-011	Laser Pulse Compression by Stimulated Raman Scattering in a Plasma	\$13426
04-FS-019	The Innermost Inner Core: Fact Or Artifact?	\$20925
04-FS-031	Geophysics Experiments on High-Powered Lasers	\$10000
04-FS-032	Two-Phase Noble Liquid-Gas Detectors for Detection of Coherent Elastic Neutrino Scattering	\$14654
04-FS-034	Microfluidic Liquid Cell for Molecular Imaging in Aqueous Phase Using Atomic Force Microscopy	\$15242

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Project ID	Project Name	FY Total
04-LW-017	Development of Insulating Liquids for Detecting and Imaging of Low-Energy Particles	\$180213
04-LW-020	Relativistic Antimatter Plasmas Created by Ultraintense Lasers	\$184709
04-LW-036	Fractality of Fracture Surfaces in Polycrystalline Materials	\$163723
04-LW-048	Understanding the Mechanism of Human P450 CYP1A2 using Coupled Quantum-Classical Simulations in a Dynamical Environment	\$189383
04-LW-049	Investigation of AAA+ Protein Machines that Participate in DNA Replication, Recombination, and Response to DNA Damage	\$190317
04-LW-054	New-Shape Memory Polymers for Actuators	\$176230
04-LW-065	Application of Light-Emitting Polymers to Detect Pathogen DNA in Blood	\$185619
04-LW-069	A Single-Molecule Study of the Movement of a DNA Sliding Clamp	\$227019
04-LW-077	Constraints on the Nature of Terrestrial Core-Forming Melts: Ultrahigh-Pressure Transport Property Measurements and X-Ray Computed Tomography	\$172832
04-SI-003	Kinetic Simulation of Boundary-Plasma Turbulent Transport	\$1213007
05-ERD-003	The Structure and Properties of Nanoporous Materials	\$328614
05-ERD-006	Developing Radiography for Advanced Radiography Capability at Future Large Fusion-Class Lasers	\$272345
05-ERD-007	Physics from the MIPP Experiment	\$322889
05-ERD-008	Emerging Contaminants: Application of Microarray Technology to the Detection of Mixtures of Endocrine-Active Agents	\$252431
05-ERD-009	Nano-Barometers: An In Situ Diagnostic for High-Pressure Experiments	\$203757
05-ERD-011	Neutron Capture Cross Section Measurements at DANCE	\$182814
05-ERD-012	Catalyzing the Adoption of Software Components	\$243800
05-ERD-014	Hysteresis and Kinetic Effects during Liquid-Solid Transitions	\$219804
05-ERD-016	Characterization and Control of Laser-Induced Modifications in KDP and DKDP Crystals	\$444707
05-ERD-018	LOCAL: Locality-Optimizing Caching Algorithms and Layouts	\$200582
05-ERD-019	A New Capability for Regional High-Frequency Seismic Wave Simulation in Realistic Three-Dimensional Earth Models to Improve Nuclear Explosion Monitoring	\$219438
05-ERD-020	Fully Atomistic Simulations of Hydrodynamic Instabilities and Mixing	\$313797
05-ERD-021	Heterogeneous Processes at the Intersection of Chemistry and Biology	\$203985

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Project ID	Project Name	FY Total
05-ERD-025	Avoiding Surprise: Countering Novel Chem-Bio-Warfare Agent Threats	\$413799
05-ERD-026	Chemical Specific Cellular Imaging of Biofilm Formation	\$165072
05-ERD-027	Innovative Copolymer Complex to Inhibit the Transport of Biological Aerosols	\$285795
05-ERD-028	CHEMTREAT: Accelerated Remediation of Contaminated Fine-Grained Sediments by a Chemical Clay Cracking and Co-Solvent Flushing Process	\$216751
05-ERD-029	Decontamination of Terrorist-Dispersed Radionuclides from Surfaces in Urban Environments	\$199058
05-ERD-030	Optical Properties as a Real-Time in-situ Materials Diagnostic at Extreme Conditions	\$273372
05-ERD-032	Remote Sensing of Alpha and Beta Particle Sources	\$352002
05-ERD-033	Homodyne Imaging Vibrometry Experiment (HIVE)	\$388108
05-ERD-035	Controls of Fluid Chemistry on Fracture Growth	\$235772
05-ERD-036	Advanced Studies of Hydrogen at High Pressures and Temperatures	\$222142
05-ERD-037	Ceramic Laser Materials	\$167374
05-ERD-038	Integration and Codevelopment of a Geophysical CO2 Monitoring Suite	\$263431
05-ERD-039	Determination of the High-Pressure Melting Curve of Iron	\$151538
05-ERD-041	Risk Analysis of Secure Knowledge Discovery	\$143969
05-ERD-042	Detection and Attribution of Regional Climate Change	\$189363
05-ERD-043	A Dynamically-Coupled Groundwater, Land Surface and Regional Climate Model to Predict Seasonal Watershed Flow and Groundwater Response	\$216570
05-ERD-044	Hydrodynamic, Atomic Kinetic, and Monte Carlo Radiation Transfer Models of the X-Ray Spectra of Compact Binaries	\$144149
05-ERD-045	The Opacity of the Solar Interior	\$429724
05-ERD-047	Environmental Consequences of Large-Scale Deployment of New Energy Systems	\$231224
05-ERD-048	Is Climate Change Predictable? Really?	\$9714
05-ERD-049	A Multiplexed Diagnostic Platform for Point-of-Care Pathogen Detection	\$467020
05-ERD-050	Developing a Reactive Chemistry Capability for the NARAC Operational Model (LODI)	\$265180
05-ERD-053	Rapid Screening of Human Effluents with Single Particle Mass Spectrometry for Early Detection of Respiratory Disease and Cancer	\$343419
05-ERD-054	Enhanced Isolation Performance of Geologic CO2 Storage Sites through Mineral Trapping: Experimental and Field Confirmation of Model Predictions	\$208961

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Project ID	Project Name	FY Total
05-ERD-055	Probing Other Solar Systems with Current and Future Adaptive Optics	\$275984
05-ERD-058	RadTracker: Optical Imaging of High Energy Radiation Tracks	\$290982
05-ERD-060	Split-Beam, Short-Pulse Final Optics and Characterization for High-Energy Short Pulses	\$1070440
05-ERD-061	Precision Split-Beam, Chirped-Pulse, Seed Laser Technology	\$829117
05-ERD-062	Amplifier and Compressor Technology for Split-Beam, High-Energy Short Pulse Generation	\$1150000
05-ERD-063	Large-Aperture Synoptic Survey Telescope Dark Matter and Dark Energy Science	\$205120
05-ERD-064	Characterizing Hypothetical Proteins	\$313105
05-ERD-065	Comparative Analysis of Genome Composition with Respect to Metabolic Capabilities and Regulatory Mechanisms	\$195804
05-ERD-066	Mitigation of Optical Damage Sites on UV Optics	\$1203768
05-ERD-067	A Fracture Mechanics and Tribology Approach to Understanding Subsurface Damage on Fused Silica during Grinding and Polishing	\$775848
05-ERD-068	Development of Hot, LTE-Tunable Radiation Sources for Material Science Studies and Simulating Radiation Transport in Dense Astrophysical Plasmas	\$224119
05-ERD-071	Characterization of the Effect of Short Pulse Exposure on Laser Damage Size, Morphology, and Conditioning in Wide-Bandgap Materials	\$833897
05-ERD-073	Leading the Quantum Limit Revolution	\$127421
05-ERD-075	Chemical Synthesis of Vaccines	\$102904
05-ERD-076	Terascope: Terahertz Spectroscopic Imaging for Standoff Detection of High Explosives	\$161810
05-ERD-078	Discovering the Folding Rules that Proteins Obey	\$203572
05-ERD-079	A New Method for Wave Propagation in Elastic Media	\$247768
05-ERD-080	Feasibility of Single Molecule DNA Sequencing using Surface-Enhanced Raman Scattering	\$151561
05-ERD-081	Sensor Fusion for Regional Monitoring of Nuclear Materials with Ubiquitous Detection	\$254731
05-ERD-082	Ultra-precision ¹⁴ CO ₂ Measurements in Air Samples	\$100763
05-ERD-083	Technology Basis for Fluorescence Imaging in the Nuclear Domain	\$224376
05-ERD-084	Rapid Defense Against the Next-Generation BioThreat	\$286077

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
05-ERI-001	Developing the Physics Basis of Fast-Ignition Experiments at Future Large Fusion-Class Lasers	\$395267
05-ERI-002	Efficient and Reliable Data Exploration via Multiscale Morse Analysis and Combinatorial Information Visualization	\$530748
05-ERI-003	Measuring Plasmon Density of States in Warm Dense Matter	\$286509
05-FS-004	Detection of Human Presence from Aerosol Collection	\$59154
05-LW-006	Understanding the Nuclear Magnetic Fields	\$140260
05-LW-018	Development of a Chemoenzymatic-like and Photoswitchable Method for the Ordered Attachment of Proteins to Surfaces	\$186658
05-LW-027	High-Pressure Multi-Mbar Conductivity Experiments on Hydrogen: The Quest for Solid Metallic Hydrogen	\$188908
05-LW-040	Molecular Transport in One-Dimensional Lipid Bilayers: A Biological "Smoke Alarm"	\$128904
05-LW-062	Fiber Laser Replacement for Short Pulse Ti: Sapphire Oscillators--Scalable Mode Locking to Record Pulse Energies	\$103686
05-SI-003	Biological Imaging with Fourth-Generation Light Sources	\$684698
05-SI-005	Target Fabrication Science and Technology: An Enabling Strategic Initiative	\$2234567
Total # of Projects for LLNL:	200	Total Cost for LLNL: \$70326850

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NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1701025	Digital Streak Camera	\$251582
H1701043	Framing Tube Design & Fabrication	\$48625
H1701055	Laser Multipulsed X-ray Generator Performance	\$234299
H1701075	Monte Carlo Simulation of Hi-speed Gated X-ray Detectors	\$127205
H1701085	Development of a Multichannel Velocity Interferometer Optical Probe	\$44278
H1701165	Streak pyrometer	\$91680
H1701225	DSP technology intergrated into a VISAR receiver	\$96815
H1701245	Xbox Beowulf cluster	\$7262
H1701265	Bayesian inversion of noisy spectral data	\$33410
H1702014	40mm Image Converter	\$58909
H1702015	Optimization of BN-50 streak tube temporal resolution	\$92954
H1702035	Electron trajectory codes for image tube design	\$76575
H1702045	Ge-based near infrared photocathode	\$62257
H1702055	Phototube anode metalization	\$71075
H1702065	High power pulser	\$96402
H1702085	Electron beam CCD-camera readout	\$168036
H1702105	High-efficiency, low energy x-ray source	\$55827
H1702115	Production and calibration of improved x-ray detector	\$34141
H1702125	CMOS x-ray color camera	\$37859
H1702135	Ultra-high speed, long-data-length transient recorder	\$133411
H1702145	Versatile, higher-demension x-ray imager	\$146781
H1702155	Nano-materials-enhanced x-ray sources	\$61754
H1702165	Laser multipulsed x-ray generator	\$76438
H1703025	Velocimetric probe development for optical pin dome experiments	\$95560
H1703054	2 Bank DPFA	\$168048
H1703085	DOE test complex universal trigger distribution system	\$150997
H1703135	Optical transducer development for UGT testing	\$100370
H1703175	Novel anode/cathode designs for DPF optimization	\$43142
H1703195	Self-calibrating Be neutron detector	\$19132

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NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1703205	Extension of HOT/very HOT tube	\$137763
H1703215	Variable temperature/flow-rate stack for fugitive releases	\$139802
H1704014	A High Res Gamma Spectrometer at Room Temp	\$100411
H1704035	Feasibility of mapping radiation distributions with measurements restricted to the perimeters of an area	\$26502
H1704125	A tagged photon source for energy-dependent radiography	\$80563
H1704135	Investigation of Interferometer Synthetic Aperture Radar Mapping	\$94912
H1704145	Wide area sensor network prototype with small number of nodes	\$118281
H1704155	Small Compton-suppressed gamma detectors	\$19359
H1704215	Sequential probability ratio test	\$28408
H1704235	Development of Microchannel Plate - Microsphere Plate Detectors to measure gammas & neutrons	\$43494
H1704265	Liquid Organic Detector for Special Nuclear Material Detection	\$113237
H1704295	Multi-path Communication Device	\$97186
H1704335	Time-dependent CM spreadsheets for nuclear weapon detonation	\$28244
H1704345	Atmospheric Dispersion Models	\$33107
H1704425	Investigation of field effects on neutron detection	\$10707
H1704435	Neutron Diode Detectors	\$160668
H1705035	Directional Neutron Detector	\$78337
H1705044	Compact Penning Mass Spectrometer	\$76210
H1705075	Multilayer solid-state neutron detector	\$152806
H1705085	Optically-sampled Mach Zehnder system	\$155764
H1705105	Diode laser VISAR system	\$49138
H1705195	Displacement Interferometry System	\$90368
H1705225	Polymerized crystalline colloid arrays for sensing nerve agents	\$137297
H1705245	Circular polarizing flake materials for optical tracking & tagging	\$42107
H1705265	Solid State Ultraviolet Laser Diode	\$71263
H1705295	Large Format Phosphor Imager	\$82883
H1705315	Laser-ablation Phase Diagnostic	\$68331
H1705385	Carbon nanofiber field emitter	\$62326

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Total # of Projects for NTS:	57	Total Cost for NTS:	\$4984298
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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3210-2091	Development of a Three-Dimensional Radioisotope Depletion Method Using Monte Carlo Transport	\$29986
3210-2093	Alanates for High-Capacity Hydrogen Storage	\$19957
3210-2096	Sounds of Rapids as an Attractant for Migratory Fish	\$10970
3210-2100	Metallic Nanofuels for Vehicles	\$65308
3210-2101	Enhancing Performance of Hydrogen-Storage Materials Through Nanoscale Design	\$50102
3210-2102	Development of a Novel Method for Rapid Cellular Material Extraction and Separation in Air	\$39476
3210-2103	Advanced Diagnostics Algorithm for Cancer Detection Using Hyperspectral Fluorescence Imaging	\$39847
3210-2105	A Shortcut to Making Mouse Models for Stressor Resistance for Application to Longevity (Aging) and Other Exposure-Biology Research	\$24941
3210-2107	Selectively Enhanced Adatom Diffusion	\$27994
3210-2109	Environmental Isotope Forensics of Perchlorate Contamination	\$9954
3210-2112	Hydrogen Production from Naturally Occurring Iron Silicates	\$19342
3210-2113	Cyclopentadienyl Iron Clusters as Nanoscale Building Blocks for Multi-Electron Electrocatalysis	\$29168
3210-2114	Development of a Position-Sensitive Neutron Detector for Use at the High Flux Source Facilities: SNS and HFIR	\$27882
3210-2115	Development of the Ultimate Scanning Tunneling Microscopy for the Center for Nanophase Materials Science	\$42323
3210-2116	Real Space Imaging of High Frequency Transport on the Nanoscale	\$32377
3210-2117	"Novel, Tunable, Ultrafast, Nonlinear Optical Switching"	\$74972
3210-2118	"Development of a High-Throughput, Laser-Based Technique for Quantifying the Elemental Composition of Wood: Applications in the Forest Products Industry"	\$22713
3210-2119	Optically Manipulated Microelectronics Artificial Retina	\$24987
3210-2120	Mesosopic Fluidic-Based Actuators	\$25035
3210-2121	Creation of Switchable Photosystem II Designer Alga for Hydrogen Production	\$87233
3210-2122	Development of a Multimode and Multispectral Automated Mueller Matrix Polarization Imaging System for Noninvasive Detection and Diagnosis of Skin Cancer	\$62445

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Project ID	Project Name	FY Total
3210-2123	Design and Synthesis of Oriented Guest-Host Nanostructures for Enhanced Membrane Performance	\$74757
3210-2124	A Hybrid Solid-State Process for Joining High-Temperature Materials	\$65899
3210-2127	An Energy Efficient Method for Semi-Solid Material Processing	\$58822
3210-2128	Using Live-Cell Imaging Technologies to Probe Molecular Interactions Between Bacterial Cells and Heavy Metals	\$99735
3210-2130	An Image-Based Method for Screening and Diagnosis of Blinding Eye Disease	\$82832
3210-2131	"Direct Band Gap Semiconductors on Silicon for Solid State Lighting: Silicon-Based, Blue-Light Emitting Diodes"	\$49748
3210-2133	Development of New Nanoparticle-Strengthened Ferritic and Martensitic Steels by Thermomechanical Treatment	\$104212
3210-2135	Novel Technologies for Wide-Scale Production of Magnesium and Hydrogen	\$53199
3210-2137	Chemical Vapor Deposition--Based Combinatorial Chemistry for New Hydrogen Storage Materials	\$59116
3210-2138	High-Order Ferroelectric Nanolithography: A Key to Near-Atomic-Density Information Storage and Patterning	\$139858
3210-2139	Development of a Methodology for Using Automotive Knock Sensors to Detect Start-of-Combustion for Diesel Engines Operating in both CIDI and HECC Modes	\$18833
3210-2140	No-Moving-Parts Pump and Preconcentrator	\$99440
3210-2141	Three-Dimensional Imaging of Multiple Fluorophores	\$69426
3210-2142	Alzheimer s Disease Detection via Nonlinear Analysis of EEG	\$62250
3210-2143	Nano/Microelectromechanical Systems Tools for Retinal Surgery	\$94265
3210-2144	Metabolic Profiling of Phosphorylated and Coenzyme-Bound Metabolites Using Pressure-Assisted Capillary Electrophoresis Mass Spectrometry	\$74800
3210-2145	Fundamental Growth Mechanisms of Metal Nanoparticle-Carbon Nanotube Nanocomposite Materials	\$96553
3210-2146	Detecting Concealed Nuclear Materials with Photofission	\$121479
3210-2147	Integrating Hydrologic and Economic Data for Water-Energy Nexus Assessment	\$69966
3210-2148	Integrating High-Surface-Area Electrodes in Microfluidic Manifolds	\$124596
3210-2149	Coupled-Cluster Theory with Effective Three-Body Forces	\$59974
3210-2150	Excited-State Quantum-Classical Molecular Dynamics	\$57995
3210-2151	Distributed Capacitance Sensor System fro Conduit Safeguards Applications	\$59773

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Project ID	Project Name	FY Total
3210-2152	Light-Activated Decontamination of Chemical Agents using the ORNL Plasma Arc Lamp	\$24535
3210-2153	Ionic Liquids as Novel Lubricants	\$59910
3210-2154	Exploring New Pathways in the Impact of Aerosols on Terrestrial Carbon and Hydrological Cycles	\$64925
3210-2155	A Device for Gated Gas Sampling of Transient Combustion Exhaust Events	\$19326
3210-2156	Pulse Thermal Processing and Characterization of Nanocrystalline Silicon Thin-Films for Photovoltaic Applications	\$19791
3210-2157	Quick Steps: A Fast and Cost-Effective Method of Manufacturing Carbon Single-Walled Nanotube Composites	\$19985
3210-2158	"Modeling and Computational Platform for Architecture Design of Phase-Locked, High-Power Semiconductor Laser Arrays"	\$74811
3210-2159	"Large-Area, Flexible, Heteroepitaxial, Single-Crystal-Like Diamond Films on Low-Cost Substrates for Wide-Ranging Electronic Applications"	\$25302
3210-2160	Development of Readout Electronics for the ALICE Electromagnetic Calorimeter	\$34988
3210-2161	Modeling of Impression Deformation to Characterize Plasticity of Nanocrystalline Ceramics	\$19887
3210-2162	Development of a Prototypic Three-Dimensional Deterministic Shielding and Criticality Analysis Capability	\$19991
3210-2163	Orientational Imaging in Biological Systems by Electromechanical Scanning Probe Microscopy: Galvani Experiment on the Nanoscale	\$34998
3210-2164	Development of an Intermediate-Temperature Solid Oxide Fuel Cell	\$51410
3210-2165	Sensing Arrays Based on Non-Nernstian Sensing Elements	\$27441
3210-2166	Multivariate Dependence in Climate Extremes	\$10744
3210-2167	Out-Of-Autoclave Stabilization/Carbonization of Pitch-Based Carbon-Carbon Composites and Other Pitch Materials	\$78105
3210-2168	Understand and Optimize Thermal Creep Resistance in Nb-1%Zr for High-Temperature Applications	\$65078
3210-2169	Evaluation of Urea-Diesel Emulsions to Lower NOx Emissions	\$20756
3210-2170	A New Forensics Tool: Development of an Advanced Sensor for Detecting Clandestine Graves	\$19937
3210-2171	Lead-Free Electromechanical Transducer Materials	\$39793
3210-2172	Thermoelectric Properties of Uranium Dioxide	\$5983
3210-2173	Preliminary Study of Phosphor-Based Tracer Rounds	\$15975

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Project ID	Project Name	FY Total
3211-2075	Advanced Ion Trap Mass Spectrometry for the Rapid and Confident Identification of Biological Agents	\$84351
3211-2081	Probing Explosive Nucleosynthesis Through Measurements at the Holifield Radioactive Ion Beam Facility	\$43917
3211-2082	Nano/Micro Systems for Advanced Neuronal Interfacing	\$206123
3211-2083	Nanorods for Energy and Photonics	\$218611
3211-2084	A Revolutionary Infrared Nanoscale Processing Approach	\$218917
3211-2086	Profiling Spin Injection at the Atomic Scale	\$237043
3211-2087	Comprehensive Fusion Simulation: Component-Based Software Engineering and Evolutionary Time Advancement	\$284677
3211-2088	Bringing Statistical Visualization to the Terascale and Beyond: Visual Analysis in Full Context	\$214609
3211-2089	Nanochemistry: The Bridge from Materials to Biological Sciences	\$185063
3211-2090	Characterizing the Complex Metaproteomes of Microbial Communities	\$170253
3211-2091	Comprehensive Analysis of Microbial Proteomes Using Signature Peptides	\$84587
3211-2092	Building ORNL s Capabilities for Genome-Scale Quantitative Measurements of Protein Complexes	\$121510
3211-2093	Exploring New Methodologies in Detecting Low Abundance Protein Complexes	\$157004
3211-2094	Flameless Combustion Engines in the Transition to Hydrogen	\$250901
3211-2097	Advanced Processes for Nuclear Fuel Microspheres	\$175386
3211-2098	Genetic Variability in Host Responses to Bioterror Agents	\$178549
3211-2099	Complex Oxides with Frustrated Orbital Ordering	\$178577
3211-2100	H- Laser Stripping Proof-of-Principle Experiment for the Spallation Neutron Source Power Upgrade Proposal	\$306726
3211-2101	Development of In-Situ Neutron Diffraction Capabilities for Studies of Deformation and Fracture Behavior under Hydrogen-Rich Environments	\$182011
3211-2102	Quantum Circuit Modeling for Nanoelectronics	\$179997
3211-2103	High-Throughput Biological Data Analysis and Modeling Tools for Genomes to Life Facilities	\$175169
3211-2105	Exploratory Computational Biology for Genomes to Life Facility III	\$174972
3211-2106	Characterization of Spin Structure and Spin Dynamics of Nanostructure Assemblies Using In-Field Scanning Electron Microscopy with Polarization Analysis	\$114579

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Project ID	Project Name	FY Total
3211-2109	Information Analysis and Fusion for Threat-Vulnerability Analysis	\$229940
3211-2110	Advanced Plasmonic Sensor Array for Homeland Security	\$239817
3211-2111	A Neutron Science Portal Infrastructure to Facilitate Remote Access to Spallation Neutron Source Data and Computation	\$162002
3211-2112	Photonic Bandgap Crystal Sensor	\$149798
3211-2113	"Redefining ORNL's Suite of Protein Analysis Technologies by Adding Flexibility, Analytical Capacity, and Biological Utility"	\$84924
3211-2114	Research and Development for Neutron Structural Biology and Soft-Matter Science	\$148998
3211-2115	Neutron Reflectometry Studies of the Structure of Polyelectrolyte Thin Films Subject to Shear	\$166355
3211-2116	SANS Investigation of the Mechanism and Kinetics of Membrane Protein Crystallization in Self-Assembled Surfactant Mesophases	\$86198
3211-2117	"Applications of Ultrafast, Ultra-Intense Lasers to Radioactive Ion Beam Production and Diagnostics"	\$249735
3211-2118	Nanostructured Superhydrophobic Materials	\$275706
3211-2119	"Real-Time, Interconnection-Wide, Power System Analysis and Visualization"	\$296404
3211-2120	"Multiscale Mathematics on Massively Parallel Computers: New Tools for Computational End-Stations on the Cray X1E, Red-Storm, and the IBM Blue Gene"	\$206999
3211-2121	Exploring Alternative Technologies for Next-Generation Leadership-Class Computing	\$310973
3211-2122	A Chemistry End-Station for the Large-Scale Computing Facility (Chemical Catalysis at the Nano-Scale)	\$245892
3211-2123	Computational Mechanics End-Station: Parallel Implementation of Finite Element Software on Ultrascale Computers and Its Application on Modeling Human Joints	\$269652
3211-2124	A Novel Thermomechanical Process for Producing Fe-3% Si Magnetic Steel Sheet for Transformers	\$225543
3211-2125	Advanced Network Capabilities for Terascale Computations on Leadership-Class Computers	\$179999
3211-2126	Computational Modeling of Alloy Deformation Based on a Novel Statistical Mechanics Approach	\$157708
3211-2127	"Toward Systematic Computational Instrumentation for Nanoscale, Condensed Matter, and Materials Science"	\$269557
3211-2128	"Reliability Availability, and Serviceability for Terascale Computing"	\$319160

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Project ID	Project Name	FY Total
3211-2129	Terascale Computations of Multiscale Magnetohydrodynamics for Fusion Plasmas	\$584715
3211-2130	"In-Situ, Time-Resolved, Neutron Diffraction Study of Materials Behavior Under Severe Thermomechanical Deformation"	\$188136
3211-2131	Development of Lightweight Lead-Acid Batteries	\$249223
3211-2132	Effects of Confinement on the Statistical Physics of Nanoparticles -- From Idealized Models to Real Materials: Application to Antiferromagnetic Oxides	\$202696
3211-2133	Advanced Overhead Transmission Conductors	\$258744
3211-2134	An Integrated Experimental and Modeling Approach for the Study of Microbial Biofilm Communities	\$307464
3211-2135	Inhalation Exposure to Processed Nanoparticles: Exploring a Nanotechnology and Biological Link	\$257146
3211-2136	A Deuteration Facility for In Vivo H-D Isotopic Labeling of Biological Macromolecules for Neutron Structural Biology and Soft Matter Science	\$188008
3211-2137	Radioimmunotherapy Using Oxide Nanoparticles: Radionuclide Containment and Mitigation of Normal Tissue Toxicity	\$169034
3211-2138	Petascale Computation in Condensed Matter Physics	\$180594
3211-2139	Interfacial Solids: Functionality from Atomic-Scale Charge Transfer at Stacked Interfaces	\$136886
3211-2140	Confocal Scanning-Tunneling Electron Microscopy for Three-Dimensional Atomic-Resolution In-Situ Imaging	\$235973
3211-2141	Systems-Biology Framework for Post-Genomic Microbiology	\$254878
3211-2142	Molecular and Cellular Imaging	\$340011
3211-2143	"Imaging Molecules, Active Sites, and Reactions on Nanocatalysts"	\$216013
3211-2144	Carbon Fiber Composite Monoliths as Catalyst Supports	\$92441
3211-2145	"Mass Spectrometry Beyond 100 Kilodalton, A New Generation of Mass Spectrometers to Solve a New Generation of Problems"	\$227114
3211-2146	Fog Vortices with Electrospray Mass Spectroscopy for Detection of Chemical and Biological Agents	\$185945
3211-2147	Deformation Mechanisms in Nanocrystalline Metals	\$203051
3211-2148	High-Resolution Imaging of Biological Samples in a Wet Environment	\$74937
3211-2149	Genome-Enabled Detection of Differential Mortality in a Northern Temperate Forest Ecosystem	\$71764
3211-2150	Optimization Studies for ISOL-Type High-Powered Targets	\$183655

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Total # of Projects for ORNL: 131

Total Cost for ORNL: \$16545531

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN03004/1667	Advanced Information Analysis and Processing	\$100403
PN03018/1681	Cooperative Multiagent System for Data Mining and Fusion	\$115029
PN03021/1684	Detection of Chemical Weapon-Related Chemicals in Rivers and Coastal Environments Using Bivalves	\$122100
PN03024/1687	Development of a Salmonid Based DNA Microarray for Toxicological Testing of Environmental Contaminants	\$110618
PN03030/1693	Elucidating Cell Signaling Networks in Shewanella oneidensis MR-1	\$169406
PN03034/1697	Framework for Climate Modeling Using Superparameterization Techniques	\$333549
PN03039/1702	Highly Selective Monolayer Sorbents for Advanced Analytical Applications	\$90676
PN03040/1703	High-Speed Three-Dimensional Visualization of Intercellular and Intracellular Signal Transduction in Complex Cell Structures	\$241072
PN03044/1707	Implementation of Parallel Solver in Coupled Fluid, Energy, and Solute Transport Computer Code	\$30302
PN03045/1708	Imprinted Media for Highly Selective Separation of Explosives, Chemical Warfare Agents, and Biological Warfare Surrogate Organisms	\$54984
PN03046/1709	In situ Magnetic Resonance Investigations of Metabolism and Mass Transport in Biofilms	\$207491
PN03048/1711	Influence of Gd and Sm Doping on Atomic and Ionic Transport Properties of Novel Nanostructured Ceria-Zirconia Multilayers	\$164109
PN03057/1720	Multiple Sensor Data Integration and Decision Analysis - Chemical Signature Detection	\$47981
PN03063/1726	New Thin-Film Electroactive Materials for Enhanced Separations	\$54199
PN03067/1730	Novel Near-Infrared Laser Absorption Spectrometer Development	\$94301
PN03068/1731	On-line Measurement of Particulate Organics in Diesel Exhaust by Chemical Ionization Mass Spectrometry	\$30123
PN03075/1738	Preconcentration of Organic Signatures Based on Carbon Nanotube Composites	\$142687
PN03078/1741	Real-Time Detection and Multidimensional Characterization of Single Air-Borne Microorganisms	\$99949
PN03083/1746	Single Enzyme Nanoparticles on Nanostructured Matrices	\$184475
PN03085/1748	Sonoluminescence Following Acoustically Driven Bubble Collapse	\$150749

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN03086/1749	Stress Activated Control Mechanisms Underlying Signal Transduction Networks	\$240701
PN03090/1753	Synthesis and Characterization of Novel Nanoporous Transition Metal Phosphates with Inherently High Anion Adsorption Properties	\$40105
PN03091/1754	Transcriptional Profiling of Microbial Syntrophic Systems	\$294504
PN03094/1757	Using High Frequency Pulsed Ultrasound at Sub-Cavitation Conditions as a Mechanism to Enhance Energy Efficiency and Selectivity in Heterogeneous Catalytic Chemistry	\$26003
PN04001/1760	A Toxigenomic Approach to Quantitative Structure-Activity Relationships Modeling	\$112982
PN04002/1761	Active Disk for Proteomics	\$52368
PN04003/1762	Advanced Materials for Preconcentration and Sensing	\$37070
PN04004/1763	Aftertreatment Systems Effectiveness	\$75006
PN04006/1765	Array Technologies for Quantification of Proteins	\$262712
PN04007/1766	Atomistic Modeling of Defects and Transport Processes in Oxides	\$64591
PN04008/1767	Background Characterization and Sensitivity Analysis for Detection of Threats to Marine and Freshwater Environment	\$36486
PN04009/1768	Biological Data Fusion and Visualization	\$148393
PN04010/1769	Biological Markers in Nasal Secretion: An Application of Proteomics for Human Health Risk Assessment	\$99978
PN04013/1772	Chemically and Mechanically Stable Bipolar Membranes for Electrodialytic Desalination	\$39718
PN04014/1773	Chemostat Research Using Filamentous Fungi	\$139846
PN04018/1777	Concurrent Single-Program-Multiple-Data (SPMD) Tasking in Global Arrays and its Application to Electronic Structure Calculations on Systems with Thousands of Processors	\$139122
PN04020/1779	Coupled Proton-Electron Dynamics in Iron Containing Phyllosilicates: An experimental and theoretical investigation using neutron scattering	\$86409
PN04023/1782	Design and Demonstration of Integrated Biologically Based Risk Modeling Framework	\$125417
PN04024/1783	Development of a Novel Approach for Imaging Inhaled Particulates	\$96633
PN04025/1784	Development of High Throughput Global Metabolomics Based Upon Mass Spectrometry	\$155051

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Project ID	Project Name	FY Total
PN04027/1786	Ecological Sensors Using Enzymes Immobilized in Functionalized Nanoporous Silica Chips	\$73342
PN04028/1787	Electronically Excited States in Amorphous Solid Water	\$125070
PN04030/1789	Evaluation of Engineered Vadose Zone Bioremediation versus Natural Attenuation	\$45928
PN04031/1790	Fast, Two-Dimensional Gas-Phase Separations for Ultrahigh-Throughput Global Analyses	\$100733
PN04032/1791	Identification of Particles by Surface-Enhanced Raman Scattering Spectroscopy	\$33866
PN04033/1792	Information Fusion for Structured, Guided Analyses	\$253688
PN04034/1793	Integrated Data Structures for Mapping Cellular Networks	\$256592
PN04035/1794	Integrated Demonstrations of Threat Detection and Early Warning Systems	\$198991
PN04037/1796	Kinetics of Carbon Mineralization Using In Situ X-Ray Diffraction	\$24918
PN04040/1799	Mechanisms of Regulated Ligand Shedding	\$293639
PN04042/1801	Microcantilever-based Sensing	\$93906
PN04045/1804	Nanophase Materials and Catalysts for Hydrogen Storage	\$194989
PN04046/1805	Natural Fiber Surface Modification	\$109944
PN04047/1806	Network Inference Testbed	\$162931
PN04048/1807	Next-Generation Chemistry-Aerosol-Meteorology Model for Addressing Climate Change and Air Quality Interactions	\$204614
PN04049/1808	Novel Structured Monolith Reactors for Gas-Liquid-Solid Reactions	\$39946
PN04052/1811	Protein Cross-Linking in Solid State Designated for Identification and Characterization of "Intact" Protein Complexes	\$224904
PN04053/1812	Proteome and Bioenergetic Analysis of Growth States in a Syntrophic Co-Culture	\$262972
PN04054/1813	Proteomics of Filamentous Fungi	\$139764
PN04055/1814	Proteomics of Membrane Protein Complexes Relating Calcium Signaling and Oxidative Stress	\$294360
PN04056/1815	Quantifying Uncertainty in Complex Scientific Simulations Using Iterative, Adaptive Response Modeling (Beyond Monte Carlo)	\$209487
PN04057/1816	Research into the Causes of Independent Component Analysis Selectivity	\$102852

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Project ID	Project Name	FY Total
PN04058/1817	Saliva as a Non-Invasive Biomonitoring Matrix for Determination of Exposure to Chemical and Biological Agents	\$105294
PN04059/1818	Selective Inhibition of Gene Function in Cells	\$149752
PN04060/1819	Small Metabolite Imaging	\$114635
PN04061/1820	Spatial and Temporal Characterizations of Single-Enzyme Catalysis under Nanoscale Confinements	\$142397
PN04062/1821	Statistically Rigorous Quality Control for Proteome Analysis	\$189120
PN04063/1822	Stimulus Controlled Catalysis	\$110113
PN04064/1823	Structural Characterization of Molecular Machines	\$94088
PN04065/1824	Synchrotron X-Ray Spectroscopy of Novel Organic Diphosphine Light-Emitting Materials	\$67079
PN04067/1826	Template Synthesis of Highly Nanocrystalline SiC with High Surface Area	\$84981
PN04068/1827	Toxicoproteomics-Based Core Analytic Capability for Chemical Toxicology and Environmental Sentinel Studies	\$155478
PN04069/1828	Transmodulation of Cellular Responses to Epithelial Cells	\$174422
PN05001/1829	A Computational Framework for the Simulation of Macromolecule-Environment Interactions in Environmental Biosensor Applications	\$29994
PN05002/1830	A Field Programmable Gate Array Code Synthesis Framework for High-Performance Network Flow Solvers	\$74557
PN05003/1831	A Framework for Development of Fault Resilient Computational Chemistry Algorithms	\$42791
PN05004/1832	A Novel Carbon Dioxide Capture Process Using Organometallic Clathrates	\$90004
PN05005/1833	A Signature Approach to Homology Detection and Annotation	\$142585
PN05006/1834	Acid Dissolution in Water Clusters	\$49791
PN05007/1835	Advanced Ultra-Sensitive Radiation Analyzer	\$70827
PN05008/1836	Analysis of Protein Function in Living Cells	\$190020
PN05009/1837	Application of Hierarchy Theory to the Improved Analysis, Accuracy, and Efficiency of Multiscale Simulation Models	\$48623
PN05010/1838	Bioinformatics Resource Manager	\$177874
PN05011/1839	Biomarker Monitoring Tool: A Chironomus-Based Microarray for Detecting a Genetic Response to 90Sr Exposure	\$65997

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Project ID	Project Name	FY Total
PN05012/1840	Biophotolytic Production of Hydrogen from Water	\$49609
PN05013/1841	Biophysical Characterization of Membrane Proteins	\$100025
PN05014/1842	Biosensing Devices Based on Functionalized Nanomaterials	\$102894
PN05015/1843	Ceramic-Based Microchannel Reactors	\$44977
PN05016/1844	Characterization of Bioaerosols by Real-Time Aerosol Mass Spectrometry	\$39428
PN05017/1845	Chemical Printing of Complex Electrode Structures	\$81910
PN05018/1846	Complex Queries	\$150260
PN05019/1847	Computational Biology and Bioinformatics Tools for Understanding the Role of Membrane Proteins in Diurnal and Circadian Processes of Prokaryotes	\$49965
PN05020/1848	Computational Complexities Associated with HPC Architectures	\$99210
PN05021/1849	Computational Tools for Proton Transport Through Complex Materials	\$109178
PN05022/1850	Controlled Cultivation, Molecular Biology, and Advanced Imaging of Microbial Biofilms	\$195181
PN05023/1851	Controlled Modification of Surfaces with Peptide Ions	\$119899
PN05024/1852	Crosstalk Between Receptor Signaling Pathways	\$192423
PN05025/1853	Cyanobacteria Membrane Biology Grand Challenge: Systems Analysis of the Dynamics of Membrane Architecture, Composition, and Function -- Proteomic, Metabolomic, and Metallomic Characterization	\$169600
PN05026/1854	Cytochrome and Whole Cell Interactions With Iron Oxides	\$192690
PN05027/1855	Data Assimilation, Visualization, and Mining	\$39017
PN05028/1856	Data Integration and Pattern Recognition	\$63656
PN05029/1857	Desulfurization of Diesel Fuel by Selective Oxidation	\$60003
PN05030/1858	Desulfurization of Hydrocarbon Fuels Using Nanostructured Carbon Materials	\$19982
PN05031/1859	Detecting Biomarkers in High-Dimensional Data in the Presence of Unobserved Confounding Variables	\$39951
PN05032/1860	Detection Directed Chemical Separations with Enhanced Tracer Infrastructure	\$218354
PN05033/1861	Develop Characterization Methods for Urban Surfaces Contaminated by Radioactive Dispersal Devices	\$54748
PN05034/1862	Discovery of a Biomarker Signature in Response to Nanoparticle Exposure	\$48464
PN05035/1863	Discovery of Novel Volatile Organic Metabolic Signatures for Early Immune Response or Inflammatory Conditions	\$97840

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Project ID	Project Name	FY Total
PN05036/1864	Discovery of Plant Biomarkers of Plant-Mycorrhizae Symbiosis	\$19740
PN05037/1865	Early, Validated Biomarkers of Infectious Diseases in Humans	\$52721
PN05038/1866	Ecophysiological Investigation of Cyanobacteria using Controlled Cultivation	\$51011
PN05039/1867	Electrical Loads that Consume Non-Fundamental Electrical Power Pollution	\$68490
PN05040/1868	Emerging Architectures and Technologies for Data Intensive Computing	\$97348
PN05041/1869	Enhanced Hydrogen Production Via Separation of CO2 from Gasified Coal	\$104709
PN05042/1870	Environmental Transmission Electron Microscopy for Catalytic Studies Under Relevant Pressure Conditions	\$40088
PN05043/1871	Experimental Assessment of the Causes of Spectral Peak Broadening	\$88456
PN05044/1872	Formalized Materials Discovery for Radiation Materials	\$123204
PN05045/1873	Fundamental Investigations for Novel Acousto-Optics	\$89616
PN05046/1874	Fundamental Investigations of Heterogeneous Catalysis Using Steady-State Isotopic Transient Kinetic Analysis	\$186858
PN05047/1875	Fundamental Understanding of Catalytic Depolymerization of Cellulose	\$205375
PN05048/1876	High Power Density Solid Oxide Fuel Cell	\$69943
PN05049/1877	High Speed Ion Mobility Spectrometry for Multi-Dimensional Gas Chromatography	\$74693
PN05050/1878	High Throughput Screening of Protein Localization	\$262470
PN05051/1879	Homogeneous Organometallic Catalysts Tethered to Carbon Nanotubes	\$30069
PN05052/1880	Identification of Cellular Markers of Response to Vaccination in Non-Human Primates as Correlates of Protection	\$52484
PN05053/1881	In Situ Probe of Oxidation at Environmental Interface	\$50974
PN05054/1882	Integrated Information Architectures	\$179540
PN05055/1883	Integrated Microbial Forensics	\$189952
PN05056/1884	Interspecies Exposures in Toxicoproteomics-Based Core Analytical Capability for Chemical Toxicology and Environmental Sentinel Studies	\$26177
PN05057/1885	Investigation of Novel Fieldable Platforms for Large Volume Air Collection	\$101120
PN05058/1886	Low Cost Small-Scale Hydrogen Production from Natural Gas	\$85983
PN05059/1887	Low Cost Hydrogen Permeation Barriers	\$55492
PN05060/1888	Magnetic Resonance Imaging for Understanding Water Management in Proton Exchange Membrane Fuel Cells	\$92824

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Project ID	Project Name	FY Total
PN05062/1890	Mixed Conducting Hydrogen Separation Membranes	\$85489
PN05063/1891	Model Nanoparticles for Discovery/Validation of Particulate Matter Biomarkers	\$34561
PN05064/1892	Modeling of Energy Transfer and Associated Variance in Gamma Ray Detector Materials	\$135124
PN05065/1893	Models and Measurement for Intrinsically Secure Computing	\$116236
PN05066/1894	Modular Architectural Advanced Technology Structures	\$49570
PN05067/1895	Molecular Modeling of Cytochromes, Surfaces, and Organisms	\$153530
PN05068/1896	Morphological, Functional and Redox Studies of Synechocystis 6803 and Cyanotheca 51135 Bacterial Membrane Complexes by Methods of Electron Microscopy	\$44799
PN05069/1897	Multicellular Models for Cell-Cell Communication	\$45789
PN05070/1898	Multiscale Modeling and Uncertainty Quantification for Bioremediation	\$158408
PN05071/1899	Mutagenesis and Functional Characterization of Shewanella oneidensis Genes Involved in Fe(III) and Mn(IV) Oxide Reduction	\$155909
PN05072/1900	Nanoparticles for Enhanced Biothreat Separation and Detection	\$159724
PN05073/1901	Nanoscale Enzyme Reactors in Mesoporous Media	\$50010
PN05074/1902	Noninvasive Biofilm Characterization Using Acoustic Microscope	\$149464
PN05075/1903	Non-Invasive Real-Time In Situ Spectroscopic Monitoring of Macrophage-Particulate Matter Interactions	\$82559
PN05076/1904	Novel Micromanipulation Methods for Radioactive Particle Isolation and Characterization with Energy-Filtered Electron Microscopy	\$49928
PN05077/1905	Ontology-Facilitated Extraction, Transfer, and Integration of Image-Derived Information	\$242000
PN05078/1906	Origins of Nonlinear Spectral Response in Semiconductor Radiation Detectors	\$73781
PN05079/1907	Overcoming Heterogeneity induced Bypassing in Subsurface Remediation by Mobility-Controlled-Flooding	\$22938
PN05080/1908	Particulate Matter Exposure and Respiratory Effects Biosignature Discovery	\$62516
PN05081/1909	Pore Scale Measurement and Modeling for Reconstructing Fabric and Porometry in Random Packs of Irregular Shapes	\$49985
PN05082/1910	Power System Wide-Area Real-Time Simulation	\$78630
PN05083/1911	Predictive Proteomics for Biosignature Discovery	\$34230

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN05084/1912	Probing the Dynamics of the Interacellular Membrane Systems of Synechocystis 6803 and Cyanothece 51142 cells by Site-specific Near-Field Scanning Raman Microscopy and Fluorescence Lifetime Imaging	\$45430
PN05085/1913	Purification and Biophysical Characterization of MR-1 Redox Proteins	\$189294
PN05086/1914	Radiation Detection Scenario Analysis	\$224454
PN05087/1915	Raising Computational Efficiencies of Massively Parallel Software	\$171484
PN05088/1916	Rapid Risk Assessment Integration and Feedback Research	\$71431
PN05089/1917	Reconfigurable Computing	\$35201
PN05090/1918	Retrospective Analysis of Access Grid Events	\$93306
PN05091/1919	Rfr-Domain Protein Family Characterization in Cyanothece 51142	\$111019
PN05092/1920	Single-Pair FRET for Studying Molecular Interaction Dynamics Between Spatially Confined Proteins in the Living Cell	\$53542
PN05093/1921	Structural Characterization of Membrane Proteins	\$75138
PN05094/1922	Supporting Temporal Analysis Using Signatures for Scenarios	\$83936
PN05095/1923	Synchrotron-Like Radiation for Advanced Sample Characterization	\$91070
PN05096/1924	Synthesis of Functional Mesoporous Carbons for Mercury Removal	\$35306
PN05097/1925	The Dynamic Changes in the Molecular Interactions along the Circadian Rhythm	\$60899
PN05098/1926	Theoretical Assessment of the Causes of Spectral Peak Broadening	\$60190
PN05099/1927	Towards a Semantic Data Grid for Systems Science	\$187047
PN05100/1928	Ultra-Fast Nuclear Magnetic Resonance Structural Determinations of Proteins and Other Macromolecules	\$85120
PN05101/1929	Unraveling the Molecular Biology of Host-Pathogen Interactions	\$177312
Total # of Projects for PNNL:	173	Total Cost for PNNL: \$19260116

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PTX - Pantex Plant

Project ID	Project Name	FY Total
PX03001	High-Precision Non-Contact White Light Digitizing Sensor	\$11669
PX03002	Enhanced Analysis Capability Supporting Accelerated Aging Studies	\$106875
PX03004	Formation and Detection of Pores in Polymeric Materials	\$161105
PX03006	GMR Eddy Current System	\$7245
PX03008	Neutron Non-Destructive Imaging of Weapons Materials	\$226178
PX04002	Pit Measurement System for Vertical Arrays	\$6204
PX04003	Characterization of Corrosion Mechanisms	\$137010
PX04005	Advanced Radiation Alarm Monitoring System (ARAMS)	\$36159
PX04008	Pilot Plant Solids Addition Capability	\$26362
PX04010	Particle Size Control in Explosive Precipitation Processes	\$128829
PX04012	Fiber Optic Probe Development for Laser Spectroscopy	\$45062
PX04013	Characterization of Explosives in Solvents	\$57325
PX04015	Pilot LABSOSC System Evaluation & Application for Specific Gamma Spectrometry	\$15029
PX05001	Development of A Method to Melt/Disfigure (Sanitize) Weapon Components Using Microwave Technology	\$184997
Total # of Projects for PTX:	14	Total Cost for PTX: \$1150049

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
41193	Bio MicroFuelCell	\$941147
41194	Augmented Cognition: Next-Generation Intelligent Systems	\$3474122
50065	TALON	\$805965
52523	Atomic Layer Deposition of Highly Conformal Tribological Coatings	\$391556
52524	Assembly of Microsystems using Exothermic Multilayer Thin Films	\$339167
52526	Intelligent Interaction Control as Applied to Metrology and Assembly of Micro-Scale Components	\$378683
52527	Rapid Prototyping High-Density Circuitry (RpHdc)	\$361935
52528	Elucidating the Mysteries of Wetting	\$420260
52531	Assembly and Actuation of Nanomaterials Using Active Biomolecules	\$508476
52532	Modeling Biomembranes	\$353152
52533	Reverse Engineering Biological Networks: Applications in Immune Responses to Bio-Terrorism Threats	\$385764
52536	High Throughput Identification of Molecular Machines Involved in Membrane Signaling and Toxin Pathways	\$279372
52537	Coupled Solid-fluid-mechanical Computational Modeling of Fracture and Fragmentation in Geomaterials, Such as Hard and Deeply Buried Targets (HDBT)	\$304616
52538	Sequestration of Pathogens on Nanoengineered Surfaces	\$557926
52539	A Combined Preconcentrator and Sensor for Live Water-borne Pathogens	\$300267
52541	A Parallel Circuit Simulator for Cell Biology	\$222770
52542	Developing a Computationally Efficient Dynamic Multilevel Hybrid Optimization Scheme using Multifidelity Model Interactions	\$220325
52543	Robust Large-Scale Parallel Nonlinear Solvers for Simulations	\$96534
52544	Development of Computational Algorithms and Inversion Capabilities for Transport/reaction Simulations of Chemical/biological/radiological Terrorist Attack Scenarios in Support of Homeland Security	\$715844
52548	Active Photonic-Crystal Devices for Integrated Photonics and Silicon Photonics	\$359473
52551	Functionalized Nanoparticles for Sensor Applications	\$426395
52552	Novel In Situ Mechanical Testers to Enable Integrated Metal Surface Micro-machines	\$422712
52554	An Integrated, Stacked System-on-a-chip	\$385937

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Project ID	Project Name	FY Total
52555	Micro Mass Spectrometer on a Chip	\$211350
52556	Quantum Coherence in Semiconductor Nanostructures for Improved Lasers and Detectors	\$361591
52566	Micro Optical Gyroscope Via Monolithic Active/Passive Optical Integration	\$376771
52570	Materials Physics and Device Development for Improved Efficiency of GaN HEMT High Power Amplifiers	\$402474
52571	Leaky-mode VCSELs for Photonic Logic Circuits	\$380039
52582	Compact TeraHertz (THz) Sources for Emerging Threats Applications	\$383884
52585	Improving Human/System Interactions in Systems-of-Systems	\$520164
52587	Secure Chaotic Communications	\$364431
52590	Micro Flame-Based Detector Suite for Universal Gas Sensing	\$353019
52591	Beyond Nanoparticles - Attack on a Chemical "Holy Grail"	\$240374
52592	Advanced Proton-Exchange Materials for Energy Efficient Fuel Cells	\$406191
52595	Real-time Discriminatory Sensors for Water Contamination Events	\$312538
52596	Advanced High Efficiency Direct Cycle Gas Power Conversion Systems for Small Special Purpose Nuclear Power Reactors	\$386083
52598	Novel Catalysts For Hydrogen Fuel Cell Applications	\$299709
52606	Linking Optimization and Simulation in Critical Infrastructure Systems	\$408478
52698	Decomposition of Contaminants Using Photochemically Active Nanoparticles	\$460822
52699	Thermally Cleavable Surfactants	\$304893
52700	Transition-metal Catalyzation of Complex-hydride Absorption/desorption Reactions	\$201213
52701	Quantification of Environments and Surfaces within Micro-Packages	\$414624
52702	Assembly of Ordered Electro-Optical and Bioactive Materials and Composites	\$394788
52703	Advanced Packaging / Joining Technology for Microsystems	\$381923
52705	Magnetostrictive Elastomers for Actuators and Sensors	\$146460
52706	Development of a High-Throughput Microfluidic Integrated Microrray for the Detection of Chimeric Bioweapons.	\$183385
52711	Detailed Modeling and Simulation of Contaminant Transport in Architectural Spaces	\$355615
52717	Ultra High Temperature Ceramics for Hypersonic Vehicle Applications	\$234089

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Project ID	Project Name	FY Total
52724	Ion Mobility Spectrometer-Mass Spectrometer	\$310477
52726	Characterization, Performance and Optimization of PVDF as a Piezo-electric Film for Advanced Space Mirror Concepts	\$357738
52727	Predictive Accelerated Aging of Microsystems: The Science of Dormancy	\$567830
52728	Surety and Accountability Enhancements for Storage Containers	\$289460
52729	Nuclear Safety Weaklinks for Thermal and Mechanical Environments	\$448169
52732	Novel and Robust Environmental Sensing Devices (ESDs)	\$441762
52733	Advanced Neutron Monitors for JTA and Stockpile Monitoring	\$300169
52738	Laser Triggering of Water Switches in Terrawatt Class Pulse Power Accelerators	\$182748
52739	Experimental and Computational Study of Liquid-Solid Transition in Tin	\$95917
53586	Geophysical Subsurface Imaging and Interface Identification	\$245665
55079	Near Real Time Characterization for Assured HDBT Defeat	\$3370358
55086	Prompt Global Response	\$3706701
55087	Winning the War: A Systems Approach to Defending Our Borders	\$2236759
57308	Friction in Micromachine Interfaces	\$40000
57309	Lipid Microarray Biosensor for Biotxin Detection	\$50000
57310	Advanced Manufacturing Techniques Using Rapid Prototyping	\$47906
58907	Active Photonic Nanostructures	\$500372
59916	A Method of Evaluating Research Using New Innovation, Risk, and Impact Indicators	\$270126
62827	Non-Lethal Technologies for the War on Terrorism	\$88335
64811	Agent-Based Control of Distributed Infrastructure Resources	\$319981
66450	Advanced Techniques for Multi-Objective Discrete Optimization	\$20000
66809	Non-radioactive Safety & Performance Issues with Supercritical Water (SCW) Reactor Safety Technologies	\$25000
66810	Neutron Irradiation of Supercritical Water	\$25000
67004	Rapid Prototyping to the Nanometer Scale	\$283820
67005	Robust Manufacturing of Gel-based Components for Nuclear Weapons	\$96207
67006	Meso-/Micro-Optical System Interface Coupling Solutions	\$299063
67007	Injection Molding of Net-Shape Active Ceramic Components	\$327810

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Project ID	Project Name	FY Total
67008	Macro-Meso-Microsystems Integration in LTCC	\$475674
67010	Studies of Signaling Domains in Model and Biological Membranes Through Advanced Imaging Techniques	\$361486
67011	Imaging Self-Organization of Proteins in Membranes by Photocatalytic Nano-Tagging	\$299527
67012	Protein Microarrays for Biowarfare Agent Detection and Characterization	\$346894
67013	Interaction of Proteins with Lipid Films	\$243987
67014	New Technologies for Understanding Membrane Protein Recognition and Signaling	\$94254
67015	Massively Parallel Scalable Atmosphere Model	\$221803
67016	High Performance Processing Architecture	\$194981
67017	Substructured Multibody Molecular Dynamics	\$220988
67018	Enhancing Simulation Performance on Clusters with Configurable Auxiliary Devices	\$197302
67020	Penetrator Reliability Investigation and Design Exploration (PRIDE)	\$386681
67021	Topology Optimization for Improving Sensor Performance	\$178623
67022	Characterization and Application of Dielectrics with Controlled Leakage	\$303398
67023	Nano-g Accelerometers Using Nanophotonic Motion Detection System	\$509674
67024	Bragg Fiber Development	\$305588
67025	Microwave to Millimeter-wave Electrodynamical Response and RF Applications of Semiconductor Quantum Nanostructures	\$359350
67026	Development of GaN 20-100 Watt Ku-Band Power Amplifiers for Micro-SAR	\$315671
67027	Evanescent Wave Planar Photonic Biosensor	\$316481
67028	Passive Electronically Steerable Array (PESA) for Miniature Synthetic Aperture Radar (miniSAR), Precision Guidance, and Intelligence/Surveillance/Reconnaissance (ISR)	\$328256
67029	Advancements in Sensing and Perception using Structured Lighting Techniques and an Innovative Design Tool	\$249939
67030	Biophysics of BW-Warhead Defeat with a Kinetic Interceptor	\$337782
67032	Weaponization of Thermobaric Explosives	\$350076
67033	Development of an Enterprise-Scale Agent-Based Autonomic Logistics Simulation Model	\$300249

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Project ID	Project Name	FY Total
67034	Mobile Node Authentication in a Wireless Ad hoc Environment	\$120505
67035	Novel Processing, Affordable Motion Compensation, and Mode Multiplexing for Miniaturized Synthetic Aperture Radar	\$432698
67036	Coilgun Technology Demonstration Testbed	\$260147
67037	Enhanced Perception for Remote 3D Mapping of Unknown Indoor and Outdoor Environments	\$348997
67038	A Modular Micromagnetic Accelerometer-in Support of the mTalon Vision	\$278559
67039	MICROFUZE Integration	\$464739
67041	Analysis of Technology Impacts on Operations in Complex Environments	\$502334
67042	CBW Cloud Knockdown and Neutralization	\$292345
67044	Adaptive Force Feedback Surface Control	\$234359
67046	High-Capacity Earth Penetrator Instrumentation	\$292820
67047	Systems Analysis of Networked Sensors	\$293003
67048	Deployable Object Tracker for NMD Flights	\$100000
67049	Continuous-Flow Detector for Rapid Pathogen Identification	\$259347
67050	Biological-Security Decontamination Technology -- Reducing the Threat of Infectious Agent Spread	\$96768
67051	Consequence Management, Recovery, and Restoration after an Intentional Contamination Event	\$97885
67052	Fully Integrated System Dynamics Toolbox for Water Resources Planning	\$328241
67053	Predicting System Performance of Proton-Exchange-Membrane Fuel Cells: Computational Modeling with Experimental Discovery and Validation	\$353035
67055	Silicon Field Emission Electric Propulsion Arrays (FEPP) Powered by Orbital Nuclear Reactors	\$379999
67056	Advanced Fuel-cell Reactor for the Direct Cogeneration of Electricity During Selective Partial Oxidation of Hydrocarbons	\$349418
67057	New Hydrogen Storage Material: Metal-N-H system	\$101200
67058	Intrusion Detection for Wireless Networks	\$323931
67059	Membranes for H2 Generation from Nuclear Powered Thermochemical Cycles	\$262258
67060	Microfabricated BTU Monitoring Device for System-Wide Natural Gas Monitoring	\$100152
67061	"Tunable" Ion Conductors for Low Temperature Oxide-based Fuel Cells	\$208828

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Project ID	Project Name	FY Total
67062	Nuclear Nano-Batteries: on-board power for independent MEMS devices	\$94579
67063	Integrated Tunable Light Sources for Miniature Sensors	\$103203
67064	Ray Model of High Frequency Cavity Scarring	\$134759
67067	Noncontact Surface Thermometry for Microsystems	\$301856
67068	High Speed Interferometric Deformation Measurements	\$167185
67069	Fundamentals of Nanofluidics	\$288050
67070	Simulating Self-assembly and Growth of Biological Nanostructured Materials	\$228862
67074	Electrochemically Switchable Materials for (Bio)Microfluidics	\$198063
67075	Modeling of Friction-Induced Deformation and Microstructure	\$506444
67076	Reversible Antibody Trapping for Selective Sensor Devices	\$204799
67077	Correlated and Comprehensive Analytical Techniques for Homeland Defense	\$504423
67078	Development of High Energy Density Dielectric Materials for Integrated Microsystems	\$315193
67079	Nanolithography Directed Materials Growth and Self-Assembly	\$468273
67080	Development of a Novel Technique to Assess the Vulnerability of Micro-Mechanical System Components to Environmentally Assisted Cracking	\$158373
67081	3D Optical Sectioning with a New Hyperspectral Deconvolution Fluorescence Imaging System	\$452016
67082	The Science of Solutes: Transition Metals in LIGA Nickel	\$315795
67083	Novel Gel-Based Technology for Sensors and Weapons	\$98890
67084	Coupled Nanomechanical Oscillator Arrays for the Study of Internal Dissipation in Nano-scale Structures and Collective Behavior in Large Systems	\$301393
67085	Precisely Controlled Picoliter Vessels with Rapid Sample Preparation for Trace Biotxin Detection	\$302457
67087	Infrastructural Development for Flexible Network of Devices	\$375100
67088	Monolithic Reconfigurable Radio-Frequency Microelectromechanical (RF MEMS) Antennas	\$334091
67089	Next-Generation 3D Inspection System for Facility Monitoring	\$265633
67090	Risk Assessment Meta Tool	\$194979
67091	Featureless Spread-Spectrum Waveform Design and Processing	\$199088
67092	Tracking Slow-Moving Objects in a GPS-Denied Environment	\$371308

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Project ID	Project Name	FY Total
67093	Optical Communications	\$139953
67094	A Unique Vibration-Based Miniature Power Generator for National Security Applications	\$304207
67096	Vulnerability Assessment with Dynamic Reverse Engineering of Embedded Processors through Innate Debug Mechanisms of System-on-Chip Integrated Circuits	\$303797
67098	Nonlinear Optical Detection of Biological and Chemical Aerosol Agents Using Femtosecond Lasers	\$515425
67099	Polymer Electronic Devices and Materials	\$253886
67101	Small Circuits for Cryptography	\$97716
67104	Transceiver for Ultra-Low Power Wake-up and Command	\$119257
67107	Reconstruction Algorithm Development and Assessment for a Computed Tomography Based-spectral Imager	\$197791
67109	Dispersive Diffractive Optical Elements for the Infrared	\$401618
67111	Atmospheric Propagation of THz Radiation	\$107963
67113	High-Confidence Estimation of Relative Event Locations from Space-Based Sensors	\$172065
67114	Critical Infrastructure System of Systems Assessment Methodology	\$451336
67116	Inflatable Antenna with Adaptive Actuators	\$193594
67118	MEMS / Fuze Diagnostic Extraction in High-G Environments	\$169541
67120	Efficient Implicit Multigroup Radiation Calculations	\$149530
67121	Model for Channel Resistance in Water Breakdown	\$88752
67122	Embeddable Shock Physics Sensors	\$285370
69145	Molecular Simulation of Beta-amyloid (A-beta) Peptide Interaction with Phospholipid Membranes.	\$49999
69146	Nanoscale Testing of Deformation and Fracture in Engineering Materials	\$51125
69156	System Dynamics Modeling to Assist Regional Water Planning: Modeling the Non-Market Value of Water	\$25000
69157	Interactive Water Quality Modeling to Assist Regional Water Planning	\$25000
69158	Microbe-Exuded Polymers and the Enhanced Corrosion of Carbonate Materials	\$50000
69163	New Self-Assembled Nanocrystal Micelles for Biolabels and Biosensors	\$97823
69166	Adaptive Algorithms for Use in the Rejection of Periodic Disturbances of Unknown Frequency	\$25000

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Project ID	Project Name	FY Total
69198	Poroelastic Wave Propagation Modeling and Inversion	\$260486
70799	Developing the Foundation for Polyoxo-niobate Chemistry: Highly Tunable and Exploitable Materials	\$208368
71943	Simulating Human Behavior for National Security	\$399066
72716	Energy Systems Analysis Framework and Modeling	\$610929
73185	Superhydrophobic Surface Coatings for Microfluidics and MEMS	\$450298
73207	Micro Optical Radar (MOR) Facial Recognition Project	\$720654
74548	Risk of Biological Terrorism to Water Distribution Systems	\$130098
74759	Explicit and Implicit Measures in Human Aversive Classical Conditioning	\$50000
75443	A Mathematical Method for Quantifying the Effectiveness of Management Strategies	\$177724
75513	Developing Algorithms for Predicting Protein-protein Interactions from Experimental Constraints	\$81648
75514	Instrumentation Development for Real Time Brain Wave Monitoring	\$73617
75786	Maximally Autonomous Autodirective Antenna Array Technology	\$25000
76306	Inactivation of Avian Influenza (Bird Flu) with Sandia Developed Decontamination Formulations	\$30295
78783	Generalized Continuum Models for Inelasticity in Solids: Formulation of Theories, and Variational Methods for Computation	\$50000
79737	The Observer	\$379573
79738	Adaptive Software for Advanced Human/Computer Systems	\$224655
79739	System Dynamics Modeling of International Border Permeability and Gradient Dynamics	\$242665
79740	Understanding Human Interactions With Complex Adaptive Systems	\$298771
79741	Design and Manufacture of Complex Precision Optics	\$179732
79742	Development of a Manufacturing Capability for Production of Ceramic Laser Materials	\$171155
79743	Direct Writing in PMMA Photoresist to Expose Free-form Geometries	\$131236
79744	High Speed, Extended Depth of Field, Multi-spectral, 3D Imaging System for Real-time Micro Assembly of MEMS	\$201221
79745	Integrated Genome-Based Identification of Biological Agent Proteins: A Microfluidic Module for Nanosquencing of Proteins and Peptides	\$323051

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Project ID	Project Name	FY Total
79746	Tools for Characterizing Membrane Rafts and Toxin Interactions	\$73817
79747	Integrated Nanosystems for Monitoring Cell-Signaling Proteins	\$528586
79748	Advanced Microscopy: Time-Resolved Multi-Spectral Imaging of Single Biomolecules	\$238826
79749	DNA-Based Intelligent Microsensors for Genetically Modified Organisms (GMO)	\$263200
79750	Reverse-time Seismic and Acoustic Wave Propagation: High-fidelity Subsurface Imaging and Location of Energy Sources	\$266628
79751	Multi-Spectral Detection of Microfluidic Separation Products	\$203775
79752	A Mathematical Framework for Multiscale Science and Engineering: The Variational Multiscale Method and Interscale Transfer Operators	\$396359
79753	Microprocessor Extensions to Accelerate Scientific Applications	\$217096
79754	Data Mining on Attributed Relationship Graphs	\$294384
79755	Multi-Physics Coupling for Robust Simulation	\$272024
79756	Simulation of Neutron Radiation Damage in Silicon Semiconductor Devices	\$235886
79757	Data Pipelining for Heterogeneous Data Fusion	\$295376
79758	Recognizing Patterns in Massive Datasets	\$169295
79759	Emergent Distributed Tracking and Identification from Features in Wireless Sensor Networks	\$269204
79760	Novel Photonic Crystal Cavities and Related Structures	\$244129
79761	Integrated NEMS and Optoelectronics for Sensor Applications	\$380037
79762	Development of Advanced UV Light Emitters and Biological Agent Detection Strategies	\$325339
79763	SMART micro-preconcentrator for integrated preconcentration and detection of chemical agents and explosives	\$342686
79764	Investigation of Liquid Jet Break-up and Dispersion	\$231684
79765	Accelerating DSMC Data Extraction Via Signal Processing	\$148732
79766	Modal Analysis of Almost-Linear Structures	\$262026
79767	Nano/Micro-Engineered Interfaces for Improved Performance and Reliability	\$236710
79768	Electromagnetic Modeling of Photonic Band Gap Laminates for Tailored Emission	\$198369
79769	Shock-Induced Explosive Chemistry in a Deterministic Sample Configuration	\$120532

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Project ID	Project Name	FY Total
79770	Micro Biomechanics	\$115535
79771	Hydrodynamic Manipulation of Coalescence Dynamics	\$226251
79772	Control of Zero-Energy Modes and Contact for Nonlinear Solid Mechanics	\$239649
79773	Atomic-Scale Modeling of Phonon-Mediated Thermal Transport in Microsystems	\$218443
79774	Multiphase Dynamics of Soft Biological Tissues	\$253070
79775	Assessing Geopolitical Instability Caused by Global Climate Change	\$347222
79776	Nano-Scale Optical and Electrical Probes of Materials and Processes	\$103809
79777	Applying New Network Security Technologies to SCADA Systems	\$300597
79778	Use of Composite Materials to Refurbish Our Civil and Military Infrastructure	\$274829
79779	Desalination Utilizing Clathrate Hydrates	\$295867
79780	Development and Application of the Dynamic System Doctor to Nuclear Reactor Probabilistic Risk Assessments	\$189805
79781	Innovative Solar Thermochemical Water Splitting	\$318560
79782	Ultraviolet Water Purification Systems for Rural Environments and Mobile Applications	\$92618
79797	Physical Modeling of Scaled Water Distribution System Networks	\$98594
79798	System Analysis of Carbon Sequestration with Clean Coal Technology	\$144849
79800	MOCVD Synthesis of III-Nitride Heterostructure Nanowires for Solid-State Lighting	\$100865
79801	Novel System for Zero-Emission Electricity and Hydrogen Production from Coal and Biomass	\$251066
79803	Fuel Traps: Mapping Stability via Water Association	\$103882
79805	Key Management and Encryption against Bounded-Storage Adversaries	\$99669
79807	Risk-informed, Decision-making Methodologies for Robust Control of Complex Infrastructures	\$350333
79808	Biological Paradigms for Malice Tolerant Computing Infrastructure Assurance	\$101661
79812	Universal Continuous-flow Bioparticle Processor	\$446184
79813	Security-enabled Programmable Switch for Protection of Distributed Internetworked Computers	\$300613
79814	Rapid Onsite Measurement of Spore Viability	\$174494
79815	Automated Terrorist Threat Detection System	\$191711

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Project ID	Project Name	FY Total
79816	Ion-Induced Gammas for Photofission Interrogation of HEU	\$152163
79818	Development of Ultraminiaturized Photomultiplier Detectors	\$275861
79819	Software Architecture for Scalable and Adaptive State Management in Support of Decision Analysis Simulations	\$301069
79820	Portable Medical Diagnostic System for Detection of Presymptomatic Biomarkers of Chem/Bio-agent Exposure	\$323753
79821	Diatoms as Molecular Architects	\$340985
79823	Novel Mechanisms of Nanomechanical and Transmembrane Actuaion	\$363078
79824	Carbon Nanotube Sorting via DNA-Directed Self-Assembly	\$287119
79825	Next-Generation Contact Materials for High-Reliability Microsystems Devices	\$364928
79826	Controlled Fabrication of Nanowire Sensors	\$452002
79827	Fundamental Enabling Issues in Nanotechnology: Stress at the Atomic Level	\$303547
79829	Adaptive, Peircean Based Decision Aid	\$308926
79830	Towards a Stochastic Foundation for Information Operations	\$5267
79831	Design Tools for Complex Dynamic Security Systems	\$433322
79832	Knowledge Discovery via Sensor Fusion in Structures and Ad-Hoc Networks	\$294019
79836	UGS Concept and Technology Development for Enhancing Boost Phase Detection ISR SDAC Application	\$253159
79837	Non-Inertial Electric Field Void Sensor (RF/VCSEL Void Sensor for Munition)	\$138538
79838	Large-Area Metallic Photonic Lattices for Military Applications	\$363454
79839	Network and Adaptive System of Systems Analysis Methodology	\$227975
79840	A Pointable Platform for Acquisition, Sensing, and Tracking from a Target Booster Front Section	\$218678
79842	Adaptive Optical Zoom Sensor	\$200172
79843	Compensation of Ionospheric Errors for Geolocation	\$301065
79844	Single-Photon-Sensitive Imaging Detector Arrays at 1600 nm	\$334214
79845	Optimal Spectral Unmixing of Remotely Sensed Hyperspectral Images Without A Priori Knowledge of the Endmembers	\$82789
79846	Fully-integrated Microfluidic Microthruster System For Micropropulsion Applications	\$265956
79847	Standoff Detection of Explosives Using UV LIDAR Technology	\$352677

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Project ID	Project Name	FY Total
79848	Fail-safe Infectious Substance Transport Packages	\$208697
79849	Development of Entomologic Surveillance to Aid Early Disease Detection (EDD)	\$149472
79850	Biological Risk Assessment Methodology (BioRAM)	\$219200
79851	Extreme Response Composite Materials for Sensor Applications	\$264988
79852	Laser-Induced Breakdown Spectroscopy for Remote Explosives Detection	\$248746
79853	Assessment of the Next Generation of Pre-boot Firmware	\$208821
79854	Discrete Field-Portable Identity Microarrays	\$279487
79855	Profile-based Network Anomaly Detection	\$196768
79856	Integrated Optical MEMS using Through-Wafer Vias & Bump-Bonding	\$359530
79857	Defense Against Future Cyber Agents	\$348170
79858	Infrastructural Development for Wireless Devices	\$200000
79859	Stressed Glass Technology for Actuators and Removable Barrier Applications	\$87321
79860	The Surety of Cyber Tools	\$353062
79861	Terahertz Quantum Cascade Lasers for Standoff Molecule Detection	\$351658
79862	Advanced Anti-Tamper Technologies for National Security Applications	\$816882
79863	Forensic Tool Development for SCADA Systems	\$299150
79864	Verification Through Process Monitoring	\$142813
79865	Monolithically Integrated Micro-coolers for Sophisticated Sensor Systems	\$158941
79866	Tunable Dielectric Films for Frequency Agile RF and Microwave Integrated Circuits.	\$202132
79867	Micropolarizing Device for Long Wavelength Infrared Polarization Imaging	\$232530
79868	Next Generation High-Voltage Switches for Capacitive Discharge Firing Systems	\$200730
79869	Intelligent Fuzing for Hard Target Defeat	\$328860
79870	A New, Cost-Effective Solution to Provide Radiation-Hardened Materials for Nuclear Weapons	\$297925
79871	Micro- and Meso- Scale Detonics of Explosives	\$242777
79872	Embedded Neutron Generator Health Microsensor	\$155752
79873	Phased Antenna Arrays for JTA Systems	\$115848
79874	Ion Neutron SIMulation - INSIM	\$207514

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Project ID	Project Name	FY Total
79875	A Miniaturized mW Thermoelectric Generator For NW Objectives: Continuous, Autonomous, Reliable Power For Decades	\$349653
79876	Advanced Material Applications of Precision-Deposited and Free-Form-Fabricated Energetic Materials	\$200422
79877	Characterizing the Emissivity of Materials Under Dynamic Compression	\$146477
79878	Beyond the Local Density Approximation: Improving Density Functional Theory for High Energy Density Physics Applications	\$316435
79879	Exploring Pulse Shaping for Z Using Graded-density Impactors on Gas Guns	\$230993
79880	Thermo-physical Properties of Shocked Water for Modeling Pulsed Power Switches and Other HEDP Systems	\$138973
79881	Triggered Low-inductance Gas Switching	\$207903
79882	Adaptive-Responsive Nanostructures for Sensing Applications	\$96195
79883	Achieving a New Paradigm in Software Technology	\$371530
79884	Nano-Patterning of Electro-Active Polymers for Tunable Optics	\$97464
79885	Ultra-Cold Molecule Production	\$102718
79886	Sub-surface Measurements of Detonation Wave Structure	\$99825
79887	Assembling Semiconductor Nanocomposites Using DNA Replication Technologies	\$99158
79888	Building Cognition on Biology: Self-organization in the Brain	\$53877
79889	Nanodielectrokinetic Chromatography (nanoDEKC): Rapid Separation and Classification for Biodefense and Biomedical Applications	\$103166
79890	Quantum Computing Using Interacting Semiconductor Quantum Wires	\$98434
79891	Cell-Directed Assembly of an Integrated Nanoelectronic/Nanophotonic Device for Probing Cellular Responses on the Nanoscale	\$99806
79892	Self-Assembling Holographic Biosensors and Biocomputers	\$99646
79893	Cohesive Zone Modeling of Failure in Geomaterials: Formulation and Implementation of a Strong Discontinuity Model Incorporating the Effect of Slip Speed on Frictional Resistance	\$50000
80568	Development of Design and Simulation Models for Large-Scale Hydrogen Production Plant Using Nuclear Power	\$349451
80590	Reconciling System and Application Logs	\$25000
80591	Collaborative Distributed Transceiver Designs and Protocols for the Interface of Wireless Sensor Networks and Wireline Infrastructures	\$25006

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Project ID	Project Name	FY Total
80592	Ultra-fast low-voltage MEMS Switches for Optics and RF Applications	\$197326
80593	Catalyst Development and Micro Reformers for Fuel Processing	\$25000
80594	Catalytic Membrane Development for Micro-scale Glucose Reforming	\$25000
80595	Reliability of Materials in MEMS: Residual Stress and Adhesion in a Micro Power Generation System	\$25000
80596	Modeling River-Aquifer Interaction with Application to the Rio Grande	\$25000
80597	Optical Diagnostics for Aerosols and Other Particles	\$40000
80598	Kinetics and Mechanisms of Nanowire Synthesis	\$25000
80599	Rapid Chemical Analysis Using Micropower Gas Chromatographic Columns and Latching Microvalves	\$50000
80600	A Generalized Simulation Environment for Particulate Systems	\$50000
80601	Automated Assembly of Micro-Scale Devices	\$50000
80602	MEMS Reconfigurable Intelligent RF Circuits	\$25000
80603	Bayesian Inference for Inverse Problems, Model Structure, and Uncertainties	\$198227
80604	Atomistic Modeling of Nanowires, Small-scale Fatigue Damage in Cast Magnesium, and Materials for MEMS	\$50000
80667	Design, Analysis and Control of MEMS Devices for Micromanipulation Tasks	\$25000
80838	Molten Salt-Based Growth of Bulk GaN and InN	\$49977
81209	Randomness Complexity and Cryptography	\$70000
81752	Integrated Fiber Lasers for Efficient High-Power Generation	\$1852242
81753	Advanced Fusion Concepts: Neutrons for Testing and Energy	\$1914213
81754	Microsystems-enabled Virtual Perimeter Security	\$1620071
82854	Developing Novel Scaffolds for Biological Molecules by Solving the I-QSAR Problem Using the Signature Molecular Descriptor	\$50000
84266	Effective Dispersion of Nanoparticles by Polymers	\$201465
84267	Bead-based Multiplexed, Orthogonal, BW/ID (BioWarfare/Infectious Disease) Detection Microsystem and Technologies	\$349890
84269	Supramolecular Structures of Peptide-Wrapped Carbon Nanotubes	\$101057
84270	Robust Spore-based Detection System	\$110562
84271	Terahertz Detectors for Long Wavelength Multi-Spectral Imaging	\$390823

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
84272	Finite Temperature Self-consistent GW Approach-Applications to High Energy Density Physics	\$104268
84273	Optics Integration into Microsystems using Electrostatically Steerable Fibers	\$157532
84314	Acoustic Sensors for Cell Signaling Proteins	\$76474
84315	Micropower Chemical Fuel-to-Electric Conversion: A "Regenerative Flip" Hydrogen Concentration Cell Promising Near Carnot Efficiency	\$50059
84316	Thermal Accommodation of Carbon Nanotube Coatings	\$75190
84317	Dynamics of Particulate Film Formation on Surfaces During Coating	\$49930
84318	Electroforming of Bi1-xSbx Nanowires for High Efficiency Micro-Thermoelectric Cooling Devices on a Chip	\$197892
84320	Advancement in Thermal Interface Materials for Future High-Performance Electronic Applications	\$308019
84438	Capabilities for Design and Analysis of Fluid Structure Interaction for Active Aeroelastic Control	\$101767
85512	File System Performance Optimization for Supercomputing Applications	\$25000
85513	MEMS-based Arrays of Micro Ion Traps for Quantum Computation and Quantum Simulation Scaling	\$324121
86358	Analysis of Bead Attached Ion Channels on Optically Addressable Micro-Fluidic Electrode Arrays	\$25000
86360	Sensor for Remote Detection and Monitoring of Uranium Enrichment and Conversion Processes	\$189603
86361	Terahertz Spectral Signatures: Measurement and Detection	\$149962
86362	PCSS/Fiber-Optic Trigger System for Pulsed Power Switches	\$192744
86363	Algorithms for Attention and Recognition of Humans and Threat Objects in Video	\$147897
86364	Surety Enabled by Reduced Cost	\$165996
86641	Detection of Contraband in Fuel Tanks	\$54631
86801	Capture and Utilization of Prosody in Disambiguating Spoken Speech	\$25000
87787	Exploratory Reseach into Pathogen Surface Interactions	\$306032
89669	Diffusionless Fluid Transport and Routing Using Novel Microfluidic Devices	\$65798
90493	Exploiting Interfacial Water Properties for Desalination and Purification Applications	\$470253
90495	Static RF Cavity Experiment for Penetration Probe Communications	\$51841

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
90496	Human Performance Modeling of Soldiers for SoS Analytics	\$49908
90497	Development of a Universal Fuel Processor	\$324509
90498	Emulsion Technology for Sample/Contaminant Collection	\$127744
90499	Visualizing Higher Order Finite Elements	\$101145
90501	Rapid Updating of Stochastic Models Using Sensor Information	\$109547
90502	Atomic Force Microscopy Measurements of Adhesive Forces for Interpreting Colloid Transport	\$48376
90503	Interstitial Monitoring Technologies	\$57660
90504	An Exploration of the Potential of Nanorobotics	\$46694
90505	Extension of Interferometric Synthetic Aperture Radar to Multiple Phase-Centers	\$59913
90506	Bioagent Detection Using Miniaturized NMR	\$124346
90729	Analysis of Real-Time Reservoir Monitoring: Reservoirs, Strategies, & Modeling	\$149530
90730	Merging Spatially Variant Physical Process Models Under an Optimized Systems Dynamics Framework	\$190520
90731	MEMS Oscillators for RF Data Transmission During High-G Penetration Events	\$91565
90732	Detection of Antennas	\$129366
90733	Threat Mitigation via Direct Drive Currents	\$79446
90797	Evaluation of a High Voltage Switch for Penetrator Fuzing	\$61125
91312	Binary Electrokinetic Separation of Target DNA from Background DNA Primers	\$29690
91663	Characterization of Rubber as a Light, Effective, Convenient Material for Armoring Light Military Vehicles	\$58982
91664	Advanced Spectroscopic Sensors for Proliferation Prevention in Reprocessing Plants	\$46810
91905	Science-Based Engineering and Cognition for Network Analysis	\$48062
91991	Nanostructured Surfaces for Microfluidics and Sensing Applications	\$13834
92368	Intrinsic Code Verification Signature Generation	\$59705
93025	Smart Strike Weapon (SSW)	\$13047
93032	Developing a Viable SCADA IO System Architecture	\$156546
93033	Improved Radar-Pulse Detector For Radar-Responsive Tags	\$52432

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
93034	Nonproliferation Chem/Bio Scenarios	\$49488
93035	Laser Propagation Analysis	\$72036
93137	Fast, High-Accuracy Evaluation of Technology Insertion Scenarios via Mixed-Integer Programming	\$69083
93349	Vulnerability Assessment Modeling of Extended Detection Systems	\$88849
93361	Fundamentals of Embossing Nanoimprint Lithography in Polymer Substrates	\$50000
93362	Rational Understanding and Control of the Magnetic Behavior of Nanoparticles	\$50000
93364	MEMS Dual Backplate Capacitive Microphone	\$25000
93365	Flow Control and Mixing in Microfluidic Devices	\$20000
93366	Process Science and Engineering for Thermomechanical Nano-manufacturing	\$20000
93367	Micromechanics Modeling of Multifunctional Nanocomposites	\$20000
93369	Fabrication and Device Applications of Aligned Mesoporous Architectures	\$50000
93390	Parasitic Power Generation in a MEMS Device	\$74929
93652	Atmospheric Aerosols	\$20000
93736	Characterization of Nanomagnetic Materials	\$20000
94019	Hypersonic Submunition Dispense	\$152354
94124	Assessment of Quantum Dot Photoluminescence Measurement Techniques	\$2989
94235	Atomic Layer Deposition of Boron Nitride Films for Microsystems Lubrication Applications	\$29713
94253	Feasibility Study on Using DoD Tech Demo Technologies	\$44384
Total # of Projects for SNL:	408	Total Cost for SNL: \$108710400

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SRP - Savannah River Plant

Project ID	Project Name	FY Total
SR03001	Plasma Arc Process to Decontaminate Palladium for Recycle	\$179271
SR03005	Fill Stem Decontamination Using Plasma and/or Atomic Oxygen	\$47425
SR03006	Heat Transfer and Modeling of Next Generation Metal Hydride Beds	\$105226
SR03008	Catalyzed Alkali Metal Borohydrides for Tritium and Hydrogen Storage	\$61056
SR03014	Glass Microsphere Encapsulation of Hydrogen Absorbents	\$99326
SR03029	Evaluation of Alternate Stainless Steel Surface Coatings and Methods for Passivation	\$33410
SR03030	Evaluation of Non-Reactive, Permeation Resistant Materials for Tritium/Hydrogen Storage & Processing	\$11929
SR03036	Tritium Reservoir Performance Prediction and Analysis Tools	\$103244
SR03037	Pinch Weld Process Improvement Using Secondary Variable Analysis and Advanced Weld Controls	\$153767
SR03038	Development of Stainless Steel Alloys with an Innate/Self-Healing Permeation Barrier	\$14258
SR03046	Multiplexed Vapochromic Ammonia and Moisture Sensors for Tritium Process Monitoring	\$82137
SR03052	Universal Tritium Transmitters	\$143601
SR03060	Palladium on Ceramic as an Alternative to Palladium on Kieselguhr	\$8661
SR04009	Detection and Measurement of He-3 Bubbles by Positron Annihilation Lifetime Spectroscopy	\$34173
SR04011	Develop Low Cost, High Sensitivity Optical Gas Sensors using Surface Enhanced Raman Spectroscopy	\$17941
SR04015	Improved material for methane cracking	\$125369
SR05018	Separation and Measurement of Deuterium, Protium, and Tritium Using a Micro Gas Chromatograph	\$1019
SR05020	Electrical Heat Standards for Calorimetry	\$1164
SR05023	Modeling of Pressure Swing Adsorption Separation Process	\$94489
SR05027	Low Cost, High Flux Ni-Ti-Nb Hydrogen Purification/Separation Membrane Development	\$150508
SR05029	Synthesis of Metal Hydrides by Mechanical Alloying at Elevated Temperatures in a High Speed Attritor	\$128837
SR05033	Create New Rigorous Thermal-Cycling Absorption Process Model	\$253790
SR05041	Permeation-resistant Coated Gloves for Gloveboxes	\$6937

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SRP - Savannah River Plant

Project ID	Project Name	FY Total
SR05043	Improved Fill Stem Bore Inspection Using Analytical Chemistry Methods	\$4590
SR05047	Demonstration of Pressure Swing Adsorption (PSA) Separation Processes	\$263093
SR05058	Cell Phone Detection Security Initiative	\$19201
SR05061	Biocatalytic Separation of Isotopes of Hydrogen in the Aqueous Phase	\$3216
Total # of Projects for SRP:	27	Total Cost for SRP: \$2147638

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1201020	Rapid In-situ Identification of Fissile Material Type in Cans	\$17887
Y1201021	Direct Electrolytic Reduction of Uranium Oxides	\$104740
Y1202005	Hand-Held Enrichment Meter	\$61622
Y1202009	Real Time Identification of Airborne Particles (Be, U, etc.)	\$5406
Y1202014	Advanced Melting Process Using High Flux Density Infrared (IR)	\$224536
Y1202015	Infrared (IR) Heating for Preheating Uranium Billets	\$587074
Y1202036	Chromatographic Separation	\$16638
Y1202039	Equal Channel Angular Processing	\$172709
Y1202052	Advanced Analysis Engine	\$2631
Y1202096	Zone Refining	\$61289
Y1202101	Tool Tuning	\$27016
Y1202102	Fisk Rad Detectors	\$71287
Y1202103	Fuzzy Logic Analysis of Measurement	\$95708
Y1202105	UNCC Hole Plate	\$118998
Y1202106	UFL HSM	\$108590
Y1202107	NCSU Artifact	\$69285
Y1203001	Radiograph Archival	\$38604
Y1203010	U-C Properties	\$61283
Y1203014	High Accuracy, High Density	\$61750
Y1203020	Holo Interferometry	\$14695
Y1203021	Micro CT	\$43111
Y1203023	SFM Process Monitoring	\$5416
Y1203032	High Speed Machining	\$7523
Y1203039	Advanced SDOR	\$281670
Y1203043	ID of Ultra Fine Particles	\$81317
Y1203050	Lugless Casting	\$25535
Y1203051	Multizone Furnace	\$6378
Y1203059	High Gradient Magnetic Filtration	\$37722
Y1203065	Digital DU	\$88642

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1203073	LiH Assessment	\$188226
Y1203074	IWMS	\$942183
Y1203075	Project 2	\$36146
Y1203076	Tech Infusion	\$52534
Y1204006	Cone Beam X-ray CAT scan	\$226636
Y1204008	Mold Material	\$13915
Y1204015	Chemistry Control Using Slow Solidification	\$21683
Y1204019	Surface Metrology	\$60055
Y1204036	Wireless Predictive Maintenance	\$78267
Y1204037	Process Radiation Detector System	\$98678
Y1204040	U Compatibility with Crucible Materials	\$124144
Y1204041	Slag Reprocessing	\$32422
Y1204045	Next Generation MW	\$1674693
Y1204059	NMC&A Confirmatory Cart	\$133011
Y1204062	Synergistic Casting Methodology	\$13669
Y1204087	Direct Conversion to Oxide	\$16559
Y1204102	Kathabar Alternatives	\$186482
Y1204103	Precision Electroplating	\$257646
Y1204110	Crucible Materials Thermo Modeling	\$15789
Y1204118	Wireless Systems Security Assessment	\$121213
Y1204126	Engineered Security Concepts	\$65604
Y1204127	Integrated Machining & Inspection at GT	\$87491
Y1204128	Source Model	\$15361
Y1204132	Selected Material Sanitization	\$4181
Y1204133	EMBOS	\$459159
Y1204134	Tusk Fracture Toughness with SSM	\$43854
Y1204135	UM - Optimet	\$41777
Y1204136	Portable Metal Analyzer	\$32895
Y1204137	UNCC Improving Machine Tool Productivity and Quality	\$47086

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1204138	Machining Uranium and Uranium Alloys	\$47365
Y1204139	Unique Mass Spectrometry Capabilities	\$54086
Y1204140	Nanostructured Material Machine Tools	\$11459
Y1204141	Ultrasonic Vibration of Molten Metals	\$72999
Y1204142	ANIPM Evaluation	\$80361
Y1205001	Reduce Holdup Measurement Uncertainty	\$29944
Y1205004	Field Programmable Gate Array (FPGA) Solution for Near Real-time Processing of Digital Radiographs	\$23244
Y1205005	High Speed Machining of Difficult to Machine Materials	\$67739
Y1205008	Inventory Verification Using Time-of-Flight Measurements with Surface Acoustic Wave Transponders	\$4196
Y1205012	Real-time Beryllium-in-Air Monitor Based on Passive Electric Spark	\$59876
Y1205013	Mobile Neutron Probe	\$24783
Y1205014	Metallographic Digital Image Control	\$90661
Y1205020	Miniature NC Turning and Milling Machine Integration	\$582324
Y1205023	Location and Geometry Improvement of Small Holes That are Non-normal to Part Surface	\$11467
Y1205024	Methyl Chloroform Replacement	\$22517
Y1205030	Inverse Vibration Modeling and Parameter Estimation	\$144328
Y1205032	Microcantilever Transducers: Next Generation of Gas Diagnostics	\$189283
Y1205033	Enhancing Inductively-Coupled Plasma Mass Spectrometry with Ion Mobility	\$114613
Y1205040	Large Alpha-Uranium Single Crystals	\$35466
Y1205042	Beryllium Specific Extraction Resin Development	\$45518
Y1205043	Conversion of Uranium Metal to Oxide	\$78598
Y1205045	Novel Material Synthesis (U)	\$50849
Y1205046	Surface Preparation for LCSEM Analysis	\$275764
Y1205047	Purification by Drip Casting	\$446
Y1205048	Purification of Uranium by Electrorefining	\$150044
Y1205055	Infrared (IR) Melt Casting	\$5414
Y1205056	Moisture Generator Analysis for Field Calibrations	\$148778

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1205062	UO2 Precipitation Process Evaluation	\$761
Y1205063	Interfacing Digital Radiography	\$64346
Y1205064	Pin Extensions	\$8654
Y1205069	Personal Radiation Detection Instrumentation (PRDI) Alternatives	\$626977
Y1205072	Nanostructured Super Material Machine Tools	\$232366
Y1205079	Optimization of Grain Boundary Structure	\$111670
Y1205082	WiMaX Networking	\$32729
Y1205084	Parylene Coating	\$228895
Y1205086	Mechanical Properties of Uranium at Very High Temperatures	\$28245
Y1205089	Advanced Hydrogen-Getter Analysis	\$128470
Y1205091	Debonding	\$40730
Y1205092	Material Cleaning Alternatives	\$55291
Y1205093	Special Casting Requirements	\$3383
Y1205094	Uranyl Nitrate Processing Evaluation	\$44333
Y1205095	Primary Extraction System Improvements	\$296329
Y1205096	Denitration Alternatives	\$15585
Total # of Projects for Y_12:	101	Total Cost for Y_12: \$11931307